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Key audit matters' disclosure impact on investors' reactions, audit quality and audit fees – Evidence from Europe

André Ricardo Marques Carvalho

Master in Accounting

Supervisor:
Professor Doutor Cláudio António Figueiredo Pais, Prof. Auxiliar, ISCTE-IUL Business School, Departamento de Contabilidade

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RESUMO

Ao longo dos anos, a necessidade por informação mais relevante fez com que os reguladores atualizassem o modelo de reporte de auditoria, e como resultado introduzissem a comunicação de matérias relevantes de auditoria (MRA). Neste estudo, investigo se esta comunicação tem impacto nas reações do investidor, na qualidade de auditoria, e nos honorários de auditoria.

Para isso, a minha amostra inclui dados de empresas cotadas dos principais índices bolsistas de cada país da União Europeia, dos dois anos após a data da transposição do Regulamento n.º 537/2014 para a legislação nacional de cada estado membro.

Para estudar o impacto da comunicação das MRA nas reações dos investidores utilizo estudos de associação, *price model* e *return model*, e um estudo de evento, o *CAR model*. Para o estudo da qualidade de auditoria, utilizo os acréscimos discricionários, e para o estudo dos honorários de auditoria utilizo o logaritmo dos honorários de auditoria.

Os resultados mostram que a comunicação da MRA não tem impacto nas reações dos investidores, na qualidade de auditoria e nos honorários de auditoria. Os resultados para as reações dos investidores podem advir de os investidores já estarem informados dos riscos incluídos na KAM ou porque acreditam que os auditores realizaram o trabalho necessários para os mitigar. Os resultados para a qualidade de auditoria podem resultar da ausência de impacto no tempo e esforço de auditoria necessários, enquanto que os resultados dos honorários de auditoria podem derivar de os auditores absorverem qualquer tempo e esforço de auditoria adicional.

Palavras-chave: Matérias relevantes de auditoria, Reações dos investidores, Qualidade de auditoria, Honorários de auditoria.
Classificação JEL: M42 M48

ABSTRACT

Throughout the years, the need for more relevant information led standard setters to reform the audit reporting model and, consequently, to introduce key audit matters' (KAM) disclosure. In this study, I investigate whether this additional disclosure has an impact on investors' reactions, audit quality, and audit fees.

In order to achieve this, my sample includes data from listed companies from the main stock market indices of each European Union's country, from the two years after the transposition date of the requirements of Regulation nº. 537/2014 to the national legislation of each state member.

To study KAM's disclosure effect on investors' reactions I use the association studies, the price model and return model, and an event study, the CAR model. For the audit quality's study, I use as proxy the discretionary accruals, while for audit fees I used the natural logarithm of audit fees.

The results reveal that KAM's disclosure has no impact on investors' reactions, audit quality and audit fees. The results find for investors' reactions might result of investors already be aware of the risks disclosed in KAM or because they believe that the auditor performed the necessary work to mitigate the disclosed risks. Audit quality' results may be driven from a lack of impact in the time resources and audit effort needed, while the results for audit fees might result of auditors absorbing any additional time or audit effort related to KAM's disclosure.

Keywords: Key audit matters, Investors' reactions, Audit quality, Audit fees.
JEL Classification: M42 M48

GENERAL INDEX

1. INTRODUCTION 1

2. BACKGROUND AND REGULATORY DEVELOPMENT 5

3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT 9

3.1 Key audit matters (KAM) 9

3.2 KAM's disclosure effect on investors' reactions 12

3.3 KAM's disclosure effect on audit quality 15

3.4 KAM's disclosure effect on audit fees 17

4. METHODOLOGY 19

4.1 Sample 19

4.2 Research Design 21

4.3 Investors' reactions 22

4.3.1 Association Study 22

4.3.2 Event Study 24

4.4 Audit quality 26

4.5 Audit fees 29

5. RESULTS 33

5.1 Descriptive Statistics 33

5.1.1 Investors' reactions 33

5.1.2 Audit quality 36

5.1.3 Audit fees 37

5.2 Correlations 39

5.3 Multivariate Analysis 41

5.3.1 Investors' reactions 42

5.3.2 Audit quality 44

5.3.3 Audit fees 45

5.4 Additional Analysis 47

6. CONCLUSION 51

7. SOURCES 53

8. BIBLIOGRAPHICAL REFERENCES 55

9. APPENDIX 71

TABLE OF CONTENTS

Table 4.1 - Sample definition 20
Table 5.1 – Descriptive statistics – Investors' reactions 35
Table 5.2 – Descriptive statistics – Audit quality..... 37
Table 5.3 – Descriptive statistics – Audit fees 39
Table 5.4 – Pearson correlations coefficients – Investors' reactions 40
Table 5.5 – Pearson correlations coefficients – Audit quality..... 41
Table 5.6 – Pearson correlations coefficients – Audit fees 41
Table 5.7 - Multivariate analysis – Fixed effects model 46
Tabela 5.8 - Multivariate analysis – Random effects model 46
Tabela 5.9 - Additional analysis – Fixed effects model 48
Tabela 5.10 - Additional analysis – Random effects model..... 49

GLOSSARY OF ACRONYMS

AR – Abnormal returns

CAM – Critical audit matter

CAR – Cumulative abnormal return

EC – European Commission

ED – Exposure draft

EU – European Union

FRC – Financial Reporting Council

GC – Going concern

IAASB – International Auditing and Assurance Standard Board

ISA – International Standard on Auditing

ITC – Invitation-to-comment

JOA – Justification of assessment

KAM – Key audit matter

PCAOB – Public Company Accounting Oversight Board

RMM – Risk of material misstatement

SAR – Standard audit report

1. INTRODUCTION

The audit report is fundamental for maintaining financial market stability and confidence (Boolaky & Quick, 2016). Throughout the years, the audit report has been subject to various discussions and debates about its form, content and value for investors, and standard setters have been exploring ways to reduce the information and expectation audit gaps.

In 2008, the financial crisis strongly increased the need for an audit reform, since authors argued that if the audit report were more informative some issues could be avoided, and that the audit and the audit report had become useless (Center for Audit Quality (CAQ), 2012; Doogar, Rowe & Sivadasan, 2015).

In response to the criticism, standard setters started working on reforms to enhance audit value and, after assessing users' needs and their feedback on possible additions and revisions to the audit report (International Audit and Assurance Standard Board (IAASB), 2011, 2012b, 2013), IAASB issued and revised some International Auditing Standards (ISA). The new standards demanded, for example, for auditors to address management reporting on going concern (GC), to disclose the name of the engagement partner (EP) on the audit report, or for listed companies, in accordance with ISA 701 "*Communicating Key Audit Matters in the Independent Auditor's Report*", to disclose Key Audit Matters (KAM), i.e., matters, that in the auditor judgements, were of most significance during the audit.

Similarly, Financial Reporting Council (FRC) and Public Company Accounting Oversight Board (PCAOB) also made changes to the auditing reporting standards (FRC, 2013a; PCAOB, 2017) and demanded for auditors to disclose risks of material misstatement (RMM), and critical audit matters (CAM), respectively, which are equivalent to KAM's disclosure from IAASB. The European Commission (EC) also published new legislation making revisions to the audit reporting system, such as the Directive n.º 2014/56/EU, and the Regulation n. º 537/2014, with new requirements for the audit of public-interest entities (PIE), as, for example, the inclusion in the audit report of a description of the significant risks, and the audit procedures implemented to address them, which is also analogous to KAM.

KAM's disclosure has been subject to different studies with various methodologies and approaches. However, most of them are experimental studies, and, while some find

various advantages that came with this additional requirement, others argue that its benefits were overcome by the disadvantages. Furthermore, the existing archival studies only provided early evidence, and at times mixed results, not allowing an accurate understanding of this topic.

My study's objective is to assess whether KAM's disclosure impacts investors' reactions, audit quality and audit fees in European Union (EU), in order to determine the real consequences of this requirement and whether standard setters' expectations and objectives are achieved, or whether further reforms are still needed.

First, for investors' reactions, I assess if KAM are considered to be informative. According to standard setters, such disclosure could improve the communication between auditors and users, and reduce the underlying information asymmetries (PCAOB, 2013b; IAASB, 2015a). However, previous studies have discussed that in order for the disclosure to be informative, and affect market indicators, it needs to provide new information (Liao, Minutti-Meza, Zhang & Zou, 2019), which might not happen in every KAM. Furthermore, investors' reactions are also strongly influenced by their inherent limited cognitive resources, as their attention (Hirshleifer & Teoh, 2003), which could lead to a lack of reactions to KAM, despite their value.

For the audit, I study whether KAM's disclosure impacts audit quality and audit fees. Standard setters also believed that KAM's disclosure would increase audit quality. However, others authors were more apprehensive about its possible effect. Some argue that this disclosure would in fact lower audit quality, since auditors might have to spend more resources with non-critical work (Deloitte Touche Tohmatsu Limited (DTTL), 2013), because of its effect on audit tenure (Pitcher Partners, 2013), and/or increase time pressure around reporting deadlines (Lambert, Jones, Brazel & Showalter, 2017). Moreover, authors were also divided about the impact that an increase in audit fees, due to the introduction of KAM's disclosure, can have, since some suggest it can increase audit effort and, ultimately, increase audit quality, or make auditors more economically dependent, which in turn lowers audit quality (Magee & Tseng, 1990; Hoitash, Markelevich & Barragato, 2007).

Regarding audit fees, standard setters did not believe that KAM's disclosure would affect them (IAASB, 2015a), however, previous literature shows that changes in accounting and auditing standards are associated with higher fees (George, Ferguson & Spear, 2013). Indeed, various authors argued that the latter scenario is the most probable, since KAM can increase the necessary audit effort to conduct an audit, and

increase, for example, litigation risk (Vanstraelen, Schelleman, Meuwissen & Hofmann, 2012; DeFond & Zhang, 2014). Therefore, in order to reduce audit liability, auditors might increase the fees charged. However, in response to the concerns, standard setters also pointed out that no further audit effort is required, because the risks are already identified during the audit, therefore, KAM's disclosure would not affect audit fees (IAASB, 2012a).

Previous literature only provides early evidence for individual countries, and in some cases with contradictory findings, which can be influenced by other factors, such as the informational and litigious environment, other confounding events, or the methodology used. To overcome these caveats, this study uses more general samples, varying from 278 to 430 observations, of listed companies from all the main stock indices of each EU state member, from the two years after the transposition date of the requirements of Regulation n.º 537/2014 to their national legislation. Based on these samples, I believe I am able to reach more accurate results and an extensive understanding of the impact of KAM's disclosure and, consequently, better add to KAM's related literature.

To study KAM's impact on investors' reactions I resort to association studies, using the price model and the return model, and an event study, using the CAR model. For the audit quality's study, I use as proxy the absolute value of discretionary accrual, while for audit fees I use the natural logarithm of audit fees paid.

Regarding KAM's disclosure impact on investors' reactions, according to the price model' results, I find that, in long term, KAM reflect risks for net income, and are informative for investors, however, the results for the second association study, the return model, do not show that this disclosure is informative to, and valued by, investors. Hence, we cannot conclude about its long-term effect. Similarly, I also find that, in short-term, as shown in the CAR model' results, KAM has no effect on investors' reactions. Taken together, these results suggest that KAM's disclosure has no impact on investors' reactions. Similar results are found for the impact of KAM's disclosure on audit quality and audit fees. In order to increase my results' robustness, I perform an additional analysis using as interest variables two dummy variables representing the number of KAM disclosed. However, the results from this analysis are consistent with the previous findings. All things considered, contrary to standard setters' expectations, and to some authors' findings, this additional requirement has no impact on investors' reactions, audit quality and audit fees.

Besides any research limitation, the results find for investors' reaction may happen because investors might be aware of the risks disclosed in KAM through previous disclosure or because they believe that the auditor performed the necessary work to mitigate the disclosed risks. The results for audit quality may be driven by the lack of impact in the time resources and audit effort needed to conduct an audit, while for audit fees, auditors might absorb any costs resulting from additional time or audit effort needed, which leads to no impact on audit fees.

My conclusions in relation to the lack of KAM impact on investors' reactions are consistent with previous findings from Gutierrez, Minutti-Meza, Tatum & Vulcheva (2018), Bédard Gonthier-Besacier & Schatt (2019), Lennox, Schmidt & Thompson (2019), and, Liao et al. (2019). Regarding audit quality, my study is also aligned with Bédard et al. (2019), Liao et al. (2019), and Reid, Carcello, Li & Neal (2019), suggesting that audit quality does not increase. Lastly, the results of lack of effect on audit fees are also consistent with Gutierrez et al.'s (2018), Liao et al.'s (2019), and Bédard et al. (2019)'s findings.

Therefore, by showing that KAM's disclosure has no impact on investors' reactions, audit quality and audit fees, we contribute to KAM and audit report literature, and complement the related previous studies in different ways. First, contrary to my study, most of them are experimental studies. Second, the existing archival studies only focus on individual countries, contrary to my sample, which includes for the first-time several state members from the EU, thus, a more general sample. Lastly, contrary to most of the previous archival studies, I use the number of KAMs as an interest variable.

The remainder of the thesis is organized as follows. First, we present the related regulatory development. Second, we review the literature related to the effect of KAM's disclosure on investors' reactions, audit quality and audit fees. Third, we describe the methodology and sample used in this study. Next, we report the results found. Lastly, I present the conclusion.

2. BACKGROUND AND REGULATORY DEVELOPMENT

Through the audit report external auditors enhance the reliability of the financial statements (Wolf, 1986; Ricchiute, 1989) and play a key role in maintaining financial market stability and confidence, and a relation of trust and obligation between managers and stakeholders (Boolaky & Quick, 2016; PricewaterhouseCoopers (PwC), 2017), especially in a setting with underlying information asymmetries (Robu & Robu, 2015).

For many years, the standardized audit report (SAR) was seen as beneficial for users' understanding and comparability at a global level, aiming only to validate the information provided by the managers, thus improving its credibility, and not to report any new information (Arens, Elder & Beasley, 2003; Simnett & Huggins, 2014). However, there have been various discussions and debates about its form, content, and value for investors (Church, Davis & McCracken, 2008; Turner, Mock, Coram & Gray, 2010; Gray, Turner, Coram & Mock, 2011; Asare & Wright, 2012; Mock, Bédard, Coram, Davis, Espahbodi & Warne, 2013).

Some audit reforms were implemented, and in some cases included new additional information to be disclosed, in an attempt to reduce both information and expectation gaps in audit. The former represents the gap between the information users consider is necessary to make informed decisions, and the information provided by the financial statements or the audit report, while the latter is described as the gap between users expectation from the auditor and the financial statement audit, and what audit really is (IAASB, 2012b).

In its core, according to Asare and Wright (2012), the expectation gap is a communication gap, that is defined as a gap that "reflects differences between what users desire and understand and what is communicated by the assurance provider" (Mock et al., 2013, p. 327). Thus, the expectation gap is essentially related to the effectiveness of the communications (Simnett & Huggins, 2014). According to one of Fiske's (1990) main strand to communication study, i.e., the semiotic school, and Duncan and Moriarty (1998), this effectiveness depends on the extent to which the communicator (auditor) and the audience (users) have a shared meaning of the messages and concepts communicated. Hence, if auditors and users do not have a shared meaning of the message conveyed in the audit report, such misunderstandings can lead to poor investment decisions, unnecessary litigation, and loss of confidence in the audit and the auditor (PCAOB, 2011; Asare & Wright, 2012).

Indeed, previous literature concluded that this lack of consensus was the reason for the unsuccess of previous audit reforms (Chong & Plugrath, 2008; Vanstraelen et al., 2012). However, although Power (1997) argues that the expectation gap will always exist, according to Vanstraelen et al.'s (2012) findings, this consensus is still possible.

After the financial crisis of 2008, the value of the audit and the audit report was again called into question (CAQ 2012; Carson, Fargher, Geiger, Lennox, Raghunandan & Willekens, 2013; Doogar et al., 2015; FRC, 2015) since some authors believed that these scandals and failures could have been avoided if the audit report was more informative. In response to the critics, and to users increased desire for more information about the auditor and the audit (Chartered Financial Analyst Institute (CFA), 2011; Mock et al., 2013), standard setters considered possible reforms to the audit reporting model.

In 2011, IAASB released a consultation paper named "Enhancing the Value of Auditor Reporting: Exploring Options for Change", to find common views between relevant users about the audit reporting, and search for ways to enhance its quality and value (IAASB, 2011). In their feedback, users believed that changes in the structure and content of the audit report could significantly improve its communicative value (Simnett & Huggins, 2014).

In the following year, IAASB sought again public comment in an "Invitation to Comment: Improving the Auditor's Report" (ITC), with examples of possible changes and a discussion of their potential advantages and disadvantages (IAASB, 2012b), which again received an overall support (Simnett & Huggins, 2014).

In 2013, IAASB published an "Exposure Draft" (ED) with the new and revised proposed International Auditing Standards (ISA), from ISA 700 to ISA 720, seeking, one last time, feedback before issuing them in their final form (IAASB, 2013).

IAASB's work came to conclusion in January 2015, with the revision of ISA 260 "*Communication with Those Charged with Governance*", ISA 570 "*Going Concern*", ISA 700 "*Forming an Opinion and Reporting on Financial Statements Issuance*", ISA 705 "*Modifications to the Opinion in the Independent Auditor's Report*", and ISA 706 "*Emphasis of Matter Paragraphs and Other Matter Paragraphs in the Independent Auditor's Report*", and the issuance of ISA 701 "*Communicating Key Audit Matters in the Independent Auditor's Report*" (IAASB, 2015b), with the objective of increasing the relevance and value of the audit report and restore the users' confidence in the audit and the financial statements (IAASB, 2015a). The new and revised auditing standards

became effective for fiscal years ending on or after December 15, 2016. In accordance with ISA 701, in the new audit report auditors must disclose key audit matters (hereinafter KAM), i.e., "detailed information about some accounting or risk issues faced by auditors during the audit" (Bédard et al., 2019, p.23), which allow a more tailored rather than standardized reporting.

Similarly, other standard setters have also issued and revised audit reporting standards to enhance the value of audit, and included requirements analogous to KAM's disclosure from IAASB. First, FRC revised ISA (UK and Ireland) 700 "*The Independent Auditor's Report on Financial Statements*" on June 2013 (FRC, 2013a), which became effective for fiscal periods starting on or after 1 October 2012. Next, PCAOB adopted a new auditing standard, AS 3101 "*The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion*" which became effective for periods ending on or after June 30, 2019 for listed companies, and December 15, 2020 for the remaining companies (PCAOB, 2017).

The European Commission implemented changes, as well, to audit market regulation trough new legislation, especially Directive n.º 2014/56/EU, that amended Directive n,º 2006/43/EC on statutory audits of annual accounts and consolidated accounts regulations and directives, and Regulation n.º 537/2014, that introduced specific requirements regarding statutory audit of public-interest entities (PIE), with the objective of enhancing, for example, the transparency and reliability of auditors of PIE in order to restore and improve the quality of audits in European Union (EU). In accordance with this regulation, among other requirements, auditors must "include in the audit report: a description of significant risks of material misstatements; a summary of audit procedures referring to such risks; and if necessary, key observations in this respect", which is also analogous to KAM's disclosure from IAASB. This regulation was effective for the audits of PIE from 17 June 2016, however the transposition of this regulation to the national legislation of each state member was completed at different periods. Therefore, entities did not start having KAM's disclosure in their audit report at the same time.

Standard setters' proposed reforms attempted to close the different identified gaps. For KAM's disclosure particularly, authors believed that its primary focus is to narrow the information gap (Simnett & Huggins, 2014), however, if this additional information improves communication effectiveness, i.e., the message transmission process, the expectation gap can also be reduced.

3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

3.1. Key audit matters (KAM)

As discussed in the previous section, with the introduction of the new standards, also came the communication of KAM, that, in accordance with ISA 701, are defined as "those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements of the current period" and should include the reasons why a certain matter is considered a KAM, the audit procedures implemented to address it, and its related disclosures.

For standard setters, KAM's would provide relevant information to users and enhance auditor's report communicative value due to the greater transparency about the audit performed (IAASB, 2015a). According to Coram, Mock, Turner and Gray (2011), since users give little attention to unqualified audit report, for the communicative value of the audit report to be improved, audit findings need to be reported in a more tailored rather than standardized way, and, as previously referred, KAM can fulfill this role.

Throughout the years of IAASB's audit reform work, besides few opponents opportunistically motivated and some specific concerns with the content (Asare & Wright, 2012; IAASB, 2012b), most of the respondents showed an overall support for the concept of auditor commentary, and later KAM (Prasad & Chand, 2017). For example, investors believed that with KAM, capital markets would become more robust and resilient due to a restored and enhanced confidence of users in auditors (IAASB, 2015b). Overall, despite some specific characteristics, IAASB's KAM are very similar to PCAOB's critical audit matters (CAM) (PCAOB, 2013b), FRC's risk of material misstatement (RMM) (FRC, 2013a), and, in France, justifications of assessments (JOA) (Bédard et al., 2019).

As previously stated, KAM's disclosure is a matter of auditor judgement. However, according to Pinto and Morais (2018), this decision is influenced by both the auditor and the underlying environment. In their study, they find that the number of KAM disclosed increases because of different factors, as when companies' complexity and risk increase, with higher audit fees, and under rule-based accounting standards, i.e., precise accounting standards.

Previous literature shows that KAM's disclosure has numerous advantages. First, in France, a study conclude that users saw JOA as beneficial, since it helped to restore audit credibility, provided a better scope of performed procedures, and represented a

tool that helped to identify the most important items to analyze (Footprints Consultations, 2011).

Next, Sirois, Bédard and Bera (2018), with an eye-tracking study, find that KAM was the section to which greater attention is paid, and had an attention directing role, as users pay relatively more attention to KAM-related disclosures and access them significantly faster, due to their saliency (Nisbett & Ross, 1980; Wedel & Pieters, 2008; Fiske & Taylor, 2013; Scott, Zhang, Le & Moyle, 2019). Christensen, Glover & Wolfe (2014) also find that users pay more attention to KAM in comparison to management disclosures, such as footnotes, due to auditors' higher credibility source, supporting previous studies that showed that more credible sources are more persuasive (Pornpitakpan, 2004). Therefore, because of this signaling effect, KAM can help users with information searching and navigating through the financial statements, as they direct their attention to matters highlighted by the auditor, which is consistent with Footprint Consultants's (2011) findings. Also, because of their prominence, and consequent increase of risks' saliency, KAM can help with incorporating information more easily into decision making (Files, Swanson & Tse, 2009; Ozlanski, 2019).

This advantage is particularly important because users have limited cognitive resources (e.g., memory and attention) to process all available information (Daniel, Hirshleifer & Teoh, 2002; Hirshleifer & Teoh, 2003) and, because the current setting is characterized by an increasing complexity and overload of financial disclosures (Shipper, 2007; You & Zhang, 2009; EFRAG, 2014).

Finally, although previous research shows that if a company receives an unfavorable audit opinion, changes in auditor are probable (Lennox, 2010; Chen, Peng, Xue, Yang & Ye, 2016), which could lead auditors to avoid disclosing companies' risks and private information in order not to disrupt their relationship (Vanstraelen et al., 2012), Lennox et al. (2019) finds that the disclosure of more KAM does not affect audit tenure.

However, some authors have also found some disadvantages of KAM's disclosure, since, by exposing risks, uncertainties or other problematic elements of the financial statements, and difficulties in the audit, KAM can also have unintended negative impacts (Boolaky & Quick, 2016). First, according to Sirois et al. (2018), a disadvantage has to do with the problems that appear when multiple KAM are reported. On the one hand, KAM's signaling effect is reduced, since the attention paid to KAM-related disclosures decreases as the number of KAM increases. This occurs because

users might lack the cognitive resources to process all the related information, or because, since KAM include a description of the performed audit procedures, users also might assume that the matter has been properly audited and handled, and therefore the related risk has been reduced. On the other hand, multiple KAM's disclosure also creates a substitution effect of non KAM-related disclosures. Because of KAM's credibility (Christensen et al., 2014) users might again assume that the most important sections have already been highlighted in the audit report and use them as a substitute for less relevant sections of the financial statements (Sirois et al., 2018). Indeed, in IAASB's ITC, one of the concerns raised was that users might wrongfully use audit commentary as a substitute to read the financial statements (IAASB, 2012b).

However, users have different "problem-solving ability, knowledge, and ability and willingness to process information thoroughly" (Schipper, 2007, p.21), thus, for some, KAM's attention directing role, by reducing their attention to less relevant disclosures, might not be beneficial and lead them to poor quality decisions, since the overlooked information could have been relevant information. Thus, although the standard setters' objective was to enable users to make better informed decisions based on the audit and the financial statements (IAASB, 2012b), such goal might not be achieved.

Second, over time KAM can also become standardized, since generally its characteristics (e.g., the nature, description, audit procedures to address it) remain the same from one year to another (BĂTAE, 2019). Indeed, according to Bédard, Coram, Espahbodi and Mock (2016), in France, JOA's disclosures have been losing their communicative value, and there is no longer evidence that it is contributing to reduce the information gap.

Third, Cade and Hodge (2014) observe that, in this reporting regime, where auditors can share publicly their opinion about management key accounting estimates, communication openness is compromised, as managers are less willing to share private information. Furthermore, because KAM's disclosure decreases investors' perceptions of management credibility, if a KAM-related disclosure is related to a precise accounting standard (Ozlanski, 2019), an unintended effect can also undermine the communication between companies and investors (Hovland, Janis & Kelley, 1953; Mercer, 2004) and investors' use of management reports in their decisions (Mercer, 2005; Yang, 2012).

Lastly, in their findings, Asbahr and Runke (2019) and Ratzinger (2019) also show that KAM's disclosure affects auditor's actions as they feel more moral licensed to not

insist on adjustments in KAM-related disclosures, as these "provide auditors with a leeway for acquiesce to client preferences" (Asbahr & Runke, 2019, p.176), thus, preserving "a harmonious working relationship" (Johnstone, Gramling & Rittenberg, 2016, p.667).

According to Kachelmeier, Rimkus, Schmidt and Valentine (2020), another possible consequence, that could be seen as an advantage or a disadvantage, is the effect on auditor responsibility. In their findings, users see CAM as a disclaimer, hence, ascribe "lower premisstatement confidence assessments in the area disclosed as a CAM and lower postmisstatement assessments of the auditor's responsibility when a misstatement occurs in a CAM-related area" (Kachelmeier et al., 2014, p.2188). Because of this, auditors' legal exposure for a misstatement in a CAM-related disclosure decreases.

3.2. KAM's disclosure effect on investors' reactions

Over the years standard setters have noticed an increasing need from users for more relevant information that leads them to better decision making (Gray et al., 2011), especially for investors, who, in an efficient financial market, continuously seek additional information to obtain high return at minimal risk, avoiding exposure to possible significant distortions in the financial statements (Robu & Robu, 2015).

In 2015, the main objective of the new proposed standards was to comply with users' needs by providing more relevant information on the audit performed, thereby improving communication between auditors and investors (IAASB, 2015a), while KAM's disclosure could be the means to reduce the information asymmetry between managers and investors (PCAOB, 2013b).

Many respondents to IAASB's ED, saw KAM as beneficial because of the additional awareness brought to users about significant matters addressed in the audit process and the auditors' work (Institute of Chartered Accountants Australia (ICAA), 2013). However, some respondents also raised concerns about the risk of KAM becoming boilerplate statements and losing the expected informational value, and/or making the audit report too long (e.g., Australian Institute of Company Directors (AICD), 2013 AUASB, 2013; IFAC Small and Medium Practices Committee (IFAC SMP), 2013), especially in a setting where, as previously referred, users do not typically read the entire audit report. However, according to eye-tracking studies, since users pay

more attention to sections placed at the beginning of the audit report (Sütterlin, Brunner & Opwis, 2008; Sirois et al., 2018), which is where KAM are, even if the report is not entirely read, this section, a priori, will get attention.

Previous studies on the impact of KAM's disclosure on investors reactions provide mixed results. Doxey's (2014) findings show that RMM's disclosures about management estimates are relevant for investors and that if a disagreement between managers and auditors is disclosed, their intention to invest decreases. Siroirs et al. (2018), using an eye-tracking study, conclude that KAM have informational value, since participants read them.

Similarly, Christensen et al. (2014), in an experiment with nonprofessional investors, find that participants who receive an auditor's report with a CAM paragraph, regarding uncertain fair value estimates, are less likely to continue to invest in a company than participants who receive a SAR, or the same information in footnotes in financial statements. Thus, CAM have an information effect, i.e., informational value, since footnotes disclosures along with a CAM paragraph cause more reactions from investors than footnote disclosures alone, creating a source of creditability effect.

However, Christensen et al. (2014) also observe that if a CAM includes a resolution paragraph, indicating the audit procedures used to address the risk and to provide auditor assurance to its readers, the investors' reaction is significantly lower, since it reduces any concern raised by the CAM paragraph itself. This result brings into question the true role of this paragraph and its necessity, since auditors already have to resolve all matters found before issuing the audit report, and its inclusion might just serve to nullify the CAM's effect, which might explain the lack of effect found by some previous studies.

By contrast, Boolaky and Quick (2016), in a study with German bank directors, find that, besides the lack of significant impact on the confidence in the financial statements, on the perception of audit quality, and on credit approval decisions, KAM's communication has no significant effect on participants perception of the information value of the audit report.

However, the different results can occur because of the lack of consideration of other factors that, according to Köhler, Ratzinger-Sakel and Theis (2020) can affect investors' reaction towards KAM, as their content, investor sophistication investors, i.e., whether they are professional or non-professional investors, and the investors' trustworthiness on the auditor.

According to previous literature, “in order to affect stock prices, trading volume, or bid-ask spreads (broad indicators of decision usefulness in the capital markets literature), KAM should convey incremental information” (Liao et al., 2019, p.9) that may alter “the expectations about a company’s future cash flows and discount rate (e.g., by disclosing unexpected risks)” (Gutierrez et al., 2018, p.1549). In their study, Reid (2015) conclude that the new reporting requirements provide new and useful information that reduce the information asymmetry. Also, they find that as the level of detail provided by the auditors increases, the information asymmetry is more reduced. However, other previous archival studies observe no significant effect of KAM’s disclosure on investors’ reactions (Gutierrez et al., 2018; Bédard et al., 2019; Lennox et al., 2019; Liao et al., 2019), supporting the argument that KAM are not informative.

Authors have pointed out reasons for this lack of reactions. First, investors can already be informed about these risks through previous disclosures (e.g., annual report of the previous year, prior earnings announcements, audit committee’s report) making KAM redundant (Gutierrez et al., 2018; Lennox et al., 2019;). Indeed, previous studies have shown that nonstandard audit reports, as going concerns opinions or modified audit opinions, had informational value only when they provided new information to investors (e.g., Chen, Su & Zhao, 2000, Ghicas, Papadaki, Siougle & Sougiannis, 2008; Menon & Williams, 2010). However, according to standard setters, when KAM’s role is not to disclose company’s information that is not publicly available (PCAOB, 2017).

Second, investors may assume that the disclosed risks’ were adequately addressed by the auditor (Gutierrez et al., 2018), which is consistent with Christensen et al.’s (2014) discussion about the purpose of including a resolution paragraph with KAM.

Finally, investors may have difficulty in understanding such matters because of the use of ambiguous and boilerplate language, and technical terms (Arnedo, Lizarraga & Sánchez, 2008; Asare & Wright, 2012; Mock et al., 2013), investors’ limited attention and processing power (Hirshleifer & Teoh, 2003), and/or the high number of “old” KAM, i.e., KAM also disclosed in previous years reports (Lennox et al., 2019).

Overall, given its importance for the financial market and the still earlier evidence from previous literature showing that KAM’s disclosure has no effect on investors’ reactions, the first research question is the following:

H1. KAM’s disclosure provides relevant information for investors’ decisions.

3.3. KAM's disclosure effect on audit quality

Audit quality plays an important role in improving financial reporting quality, since it increases the credibility of the financial reports (DeFond & Zhang, 2014). However, nowadays it is still a difficult concept to define, and consequently measure (DeFond & Zhang, 2014; Kilgore, Harrison & Radich, 2014), as different stakeholders have distinct perspectives on what represents audit quality (e.g., DeAngelo, 1981; Government Accountability Office (GAO), 2003) and which proxies are the best. Thus, different authors use different indicators to assess it (Knechel, Krishnan, Pevzner, Shefchik & Velury, 2013).

Higher audit quality is in the interest of both clients and auditors. For clients, better audit quality can help with problems related to agency costs (Jensen & Meckling, 1976), while for auditors, better audit quality lowers litigation risk, reputation risk, and regulation risk (DeFond & Zahng, 2014).

KAM's disclosure effect in audit quality is not consensual. Although for standard setters, under the proposed changes, quality could increase due to greater professional skepticism and additional attention paid and work done in key audit risks (IAASB, 2013; PCAOB, 2013b), the divergence of opinions among respondents does not allow to predict and understand the impact that such disclosure would have.

On the one hand, some believed that the introduction of KAM would increase audit quality. The Council of Institutional Investors (CII) (2014) believed that KAM could increase professional skepticism competition between audit firms, which many argue that can be a driver of audit quality (Bédard et al., 2019), enhancing audit's value and confidence in audited financial reports. For DTTL (2015), KAM's disclosure would increase audit quality by improving the communications between the auditor and those charged with governance (TCWG). In contrast, others argue that KAM's disclosure could in fact jeopardize audit quality. First, some respondents to IAASB's ED commented that with KAM, senior auditors would have to spend more time and attention with non-critical work, as determining the wording of such paragraphs, which would undermine audit quality (e.g., DTTL, 2013).

Pitcher Partners (2013) also warned for the possibility that if clients start considering KAM as a decision factor for audit tenure and replacement of auditors, audit quality would also not be promoted.

Lastly, the disclosure of KAM can also interfere with the audit process and consequently decrease audit quality. For example, due to the increasingly tighter reporting deadlines, the addition of KAM's disclosure can increase auditors' pressure to comply with them (New Zealand Auditing and Assurance Standards Board (NZAuASB), 2015a), leading auditors to sacrifice audit quality, as some studies have already showed that, during busy season, time pressure reduces audit quality (López & Peters, 2012; Lambert et al., 2017).

Furthermore, the relation between audit quality and audit fees, the latter discussed in the following section, has also been subject to various considerations. For Hoitash et al. (2007), higher audit fees can have a positive effect in audit quality, since, when large audit fees are paid, auditors may increase their effort, which ultimately, increases audit quality. However, some authors believe that with higher audit fees auditors became more financially dependent (Mautz & Sharaf, 1961; DeAngelo, 1981). This is particularly true in what regards to fees related to non-audit services, which are still allowed in some legislations and that some believe to have a "knowledge spillover" effect, as it develops auditor's expertise about a client and, consequently, increase audit quality (e.g., Knechel & Sharma, 2012; Svanström & Sundgren, 2012). Hence, because of the financial dependence, auditors might not be able to make the appropriate inquiries in order to avoid losing profitable fees (Magee & Tseng, 1990; Hoitash et al., 2007), which can decrease audit quality. In fact, Hoitash et al.'s (2007) findings show that higher audit fees lead to lower audit quality.

When it comes to archival studies, Li, Hay & Lau (2019), and Reid et al.'s (2019) findings show that the new audit report requirements, together, improved audit quality. According to Reid et al. (2019), this increase happens because of the "threat of disclosure". On the one hand, managers are more likely to alter their financial statements disclosures and estimates to avoid possible negative comments by the auditors, which lead to pre-audited statements with higher quality. On the other hand, auditors also attain a leverage over management, as they "may be able to achieve concessions related to more aggressive management estimates and judgements in exchange for not explicitly highlighting the financial statement area in the audit report" (Reid et al., 2019, p.1506).

However, when looking to KAM's disclosure alone, besides Gutierrez et al. (2018), who showed an increase in audit quality, many studies find no significant effect on audit quality (e.g., Bédard et al., 2019; Liao et al., 2019; Reid et al., 2019), which does not

support standard setters' expectations. However, the lack of effect might be due to the proxy used, as pointed by Almulla and Bradbury (2018). If standard setters' expectations do not come true, adjustments could be necessary for audit quality not to be compromised.

Overall, previous literature only provides earlier evidence that KAM's disclosure has no effect on audit quality. Therefore, the second research question is as follows:

H2. KAM's disclosure is associated with an increase on audit quality.

3.4. KAM's disclosure effect on audit fees

As previously discussed, over the years, many authors have found users needed the audit report to contain more information (Institute of Chartered Accountants in England and Wales (ICAEW), 2007), however, typically users do not make a cost-benefit analysis, as they overlook the associated costs and how much they are willing to pay for these additional disclosures (Mock et al., 2013). Therefore, an increase in audit fees can be an unexpected natural consequence.

According to previous literature, changes in accounting or auditing standards, are usually associated with an increase in audit fees (e.g., Ghosh & Pawlewicz, 2009; Kim, Liu & Zheng, 2012; George et al., 2013). Many respondents to IAASB's ED and ITC raised concerns about this possible impact, since some argued that the possible increase in audit effort, audit liability, audit costs, and litigation risk (Vanstraelen et al., 2012; NZauASB, 2013; DeFond & Zhang, 2014) would lead to greater audit fees. Indeed, auditors, in response to a possible greater risk brought by this reform can, on the one hand, do additional tests and procedures, which might lead to higher audit fees (Hogan & Wilkins, 2008), or include a litigation risk premium fee (Choi, Kim, Lu & Simunic, 2008). Regarding to the latter, previous literature has shown evidence of a relationship between audit fees and auditors' litigation risk (Bell, Landsman & Shackelford et al. 2001; Seetharaman, Gul & Lynn, 2002). Thus, if litigation risk increases, audit fees can also increase.

For standard setters, the new requirements would not demand additional effort to perform an audit (FRC, 2013b; IAASB, 2015a), so audit fees must not increase, although they warn for this possibility (PCAOB, 2013b).

The findings from previous archival literature are mixed. On the one hand, Reid et al.'s (2019) findings show no evidence that the expanded audit report significantly

affects audit fees, which is aligned with standard setters' expectations. According to them, this lack of effect is because auditors absorb any additional costs resulting from the new requirements. On the other hand, Li et al.'s (2019) findings show that the new requirements in New Zealand had a significant effect in audit fees, supporting some of the respondents' concerns about the resources needed to implement the new standards.

Various reasons referred by the respondents to IAASB's work can justify the increase in audit fees; however, this behavior can also possibly be explained by the theory of credence goods, more precisely in the form of overcharging (Causholi & Knechel, 2012). According to this theory, to maximize their interest, auditors will charge higher fees even though the additional disclosures may not require a considerable amount of additional audit effort.

When it comes to KAM's disclosure alone, some respondents believe that their communication would require additional time, which would consequently increase audit costs and auditor liability (IAASB, 2012b; PCAOB, 2013b). However, others argue that identifying these matters does not involve additional audit effort, since those risks are already identified during the audit (IAASB, 2012a; Mock et al., 2013), so, any further work with, for example, the preparation of the language for communication and the documentation of KAM (PCAOB, 2011), should have a minimal or neutral impact in audit effort, and ultimately in audit fees.

Corroborating this line of thought, some experimental and archival studies conclude that KAM's disclosure has no significant effect in audit fees (Gutierrez et al., 2018; Liao et al., 2019) and audit effort (Asbahr & Runke, 2019). Bédard et al. (2019) goes further and show that the lack of impact happened both in the first-time implementation of JOA, and in subsequent years. In their opinion, auditors might absorb any additional costs resulting from additional audit effort needed because of client reluctance to pay for such disclosures.

In conclusion, since there is still only initial evidence of the impact of KAM's disclosure on audit fees, and considering the unforeseen possible additional impacts, further research is required to obtain a proper understanding. Therefore, we put forward the following research question:

H3. KAM's disclosure is associated with an increase on audit fees.

4. METHODOLOGY

Considering my research questions and objectives, it is important to define the correct methodology. Therefore, the present study is based on the positive theory methodology, which has the underlying objective of explaining and predicting accounting and auditing practices (Watts & Zimmerman, 1990). According to Watts and Zimmerman (1986), this theory consists on the observation of a real phenomenon, the setting of hypotheses and gathering of data to test them, the empirical testing of those hypotheses, and, finally, the analysis of the results in order to draw conclusions about the object of study.

Therefore, the importance of this methodology resides in its ability to provide to decision makers on accounting policies "predictions of, and explanations for, the consequences of their decisions" (Watts & Zimmerman, 1986, p.14). Thus, the positive theory is the most appropriate methodology for this study and it allows to analyze the impact of KAM's disclosure on investors' reactions, audit quality and audit fees.

4.1. Sample

KAM's disclosure became mandatory for audits of PIE, which includes listed companies, of the European Union (EU) with Regulation No 537/2014. Therefore, the study sample includes listed companies from the main stock market index of each country of the EU. From the 27 state members, some are not part of the final sample for different reasons. First, Cyprus, Estonia, Greece, Latvia, Malta, Romania, and, Slovakia, do not have a main stock market index established, not allowing to know which of their companies should be used. The Netherlands is also excluded from the sample, since KAM were voluntarily implemented before the issuance of ISA 701. The same happens with France, where similar requirements to KAM, named JOA, have been implemented prior to the introduction of new IAASB's proposed standards.

To test my hypotheses, I use data from the two years after the transposition date of the requirements of Regulation nº. 537/2014 to the national legislation of each state member. For this reason, Croatia and Slovenia also had to be excluded from the sample, since their transposition date implied the use of data from 2020 and 2021 not yet available.

As a result, the final study sample is composed by 16 countries, which corresponds to 350 listed companies (700 observations). However, as shown in the sample selection

process in Table 1.1, it was necessary to further exclude financial companies (i.e., eliminate SIC Codes 6000 to 6999), as done in previous similar research, companies with a fiscal year different form the commercial year, companies with problems relating to lack of available information (e.g., the audit report), and dual-listed companies. The final sample used for these analyses is composed by 219 companies (438 observations).

For the investors' reactions study, in price, 8 observations were removed, while for return, 14 observations were excluded, due to lack of information for some variables included in the regressions, which makes the final sample for these analyses, respectively, 430 and 424 observations. The third proxy used for investors' reactions is the CAR, which required the filling date of each audit report, i.e., the date when each audit report was made available for the public. However, some companies do not have this information available, so, for this reason, the final sample to assess investors' reactions to KAM's disclosures through CAR is made up by 278 observations. For the audit quality's study, and the audit fees' study, 42, and 86 observations, respectively, were removed, also because of lack of information for some variables. Therefore, the final samples for these studies are, respectively, 396 and 352 observations.

In my study I hand-collected information from the audit reports (e.g., the number of KAM and their title) and the filling date of each report. I completed my database with market and financial variables form the Refinitiv Eikon database. In addition, in order to reduce the influence of outliers we winsorize continuous variables.

Table 4.1 - Sample definition

	Observations	%
Listed companies from the main stock market indices	700	100.00
Observations withdrawn:		
- Financial companies	-174	-24.86
- Companies with fiscal year different form commercial year	-40	-5.71
- Companies without information available	-42	-6.00
- Dual-listed companies	-6	-0.86
Final sample before specific exclusions:	438	62.57
- Observations withdrawn for price	-8	
Final sample price	430	61.43
- Observations withdrawn for return	-14	
Final sample return	424	60.57

- Observations withdrawn for CAR	-160	
Final sample CAR	278	39.71
- Observations withdrawn for audit quality	-42	
Final sample audit quality	396	56.57
- Observations withdrawn for audit fees	-86	
Final sample audit fees	352	50.57

4.2. Research Design

In this study I intend to investigate if KAM's disclosures have an impact on investors' reactions, and whether they affect positively audit quality and audit fees.

Regarding the analysis of investors' reactions, previous literature has commonly used two types of studies to assess if information is value-relevant (Kothari, 2001). On the one hand, the association study, which "tests for a positive correlation between an accounting performance measure and stock returns, both measured over relatively long, contemporaneous time periods, e.g., one year" (Kothari, 2001, p.116). Furthermore, since accounting reports are not the only source of information available to market participants, an association study's objective is to assess "how quickly accounting measures capture changes in the information set that is reflected in security returns over a given period" (Kothari, 2001, p.116), rather than test about the existence of a causal relation. Regarding this type of studies, I will use price, to analyze whether KAM's disclosure is value-relevant, and return, to test for differences in financial situations due to the KAM's information.

On the other hand, an event study focuses on a short time period (Dumontier & Raffournier, 2002) and "infers whether an event, such as an earnings announcement, conveys new information to market participants as reflected in changes in the level or variability of security prices or trading volume over a short time period around the event" (Kothari, 2001, p.116). Therefore, according to Kothari (2001), if stocks price change around the date of disclosure of new information, then I can conclude that the event conveys new information to market participants. I will also evaluate KAM's disclosure value relevance with an event study, resorting to *cumulative abnormal return* (CAR), since, by estimating the actual and expected return, it is possible to test whether KAM's disclosure causes abnormal returns (AR).

After that, I examine whether there is a positive relation between KAM's disclosure and audit quality through discretionary accruals, the latter estimated using Jones' (1991) model modified by Kothari, Leone and Wasley (2005). Therefore, if KAM's disclosure reduces discretionary accruals, audit quality is improved, as further discussed.

Lastly, I investigate if KAM affects audit fees using logarithm of audit fees. Thus, if a positive relationship is found, KAM's disclosure leads to greater audit fees.

4.3. Investors' reactions

To study investors' reactions to KAM's disclosure I use association studies, (1) Price and (2) Return, and an event study, the (3) CAR.

4.3.1. Association Study

An association study "tests for a positive correlation between an accounting performance measure (...) and stock returns, both measured over relatively long, contemporaneous time periods, e.g., one year" (Kothari, 2001). In my study, I used Ohlson's (1995) model, which has underlying assumptions, as the market value equals the present value, a clean surplus relationship, and linear information dynamics. By adopting this model, I use the following equation (1), designated as the price model, in which the market value (P_{it}) is expressed by:

$$P_{it} = \beta_0 + \beta_1 NKAM_{it} + \beta_2 BV_{it} + \beta_3 NI_{it} + \beta_4 NKAM_{it} * BV_{it} + \beta_5 NKAM_{it} * NI_{it} + \beta_6 IndustryDummies_{it} + \varepsilon_{it} \quad (1)$$

where:

P_{it} – Price per share for company *i*, in year *t*;

$NKAM_{it}$ – Number of KAM disclosed for company *i*, in year *t*;

BV_{it} – Book value, i.e, quotient between equity and the number of shares, for company *i*, in year *t*;

NI_{it} – Net income per share for company *i*, in year *t*.

In this model, "the mean effect of other value-relevant information" (Utrero-González & Callado-Muñoz, 2015, p.5) is captured by the intercept, while the "effect of

other non-accounting information" (Utrero-González & Callado-Muñoz, 2015, p.5), is captured by the residuals. This has been used in previous literature (e.g., Cazavan-Jeny & Jeanjean, 2006; Fung, Su & Zhu, 2010).

Besides the proxy, P_{it}, which reflects companies' value for investors (Sukesti, Ghozali, Fuad, Almasyhari & Nurcahyono, 2021), and the variable $NKAM_{it}$, the equation also includes the variables BV_{it}, and NI_{it} because of their demonstrated explanatory power for stock prices (Ohlson, 1995; Collins, Maydew & Weiss, 1997; Okafor, Anderson & Warsame, 2016). Therefore, I expect the relationship between these variables and P_{it} to be positive. Furthermore, I also include, as control variables, dummy variables for industry ($IndustryDummies_{it}$) to control industry' differences.

Still in the association study, I also use the return model, which is an adaptation of the previous model. According to the return model, changes in stock prices (R_{it}) are expressed by the following equation (2):

$$R_{it} = \beta_0 + \beta_1 NKAM_{it} + \beta_2 NI_{it} + \beta_3 \Delta NI_{it} + \beta_4 NKAM_{it} * NI_{it} + \beta_5 NKAM_{it} * \Delta NI_{it} + \beta_6 IndustryDummies_{it} + \varepsilon_{it} \quad (2)$$

where:

R_{it} – Return per share for company *i*, in year *t*;

$NKAM_{it}$ – Number of KAM disclosed for company *i*, in year *t*;

NI_{it} – Net income per share for company *i*, in year *t*;

ΔNI_{it} – Variation of net income per share for company *i*, in year *t*.

The return model has advantages as it controls for possible serial correlation among observations (Utrero-González & Callado-Muñoz, 2015) and mitigates the effects of omitted variables (Easton, 1999). the return model has been previously used, for example, by Lev and Zarowin (1999) and Okafor et al. (2016).

Like the previous model, in this equation, besides the dependent variable, R_{it}, and the variable $NKAM_{it}$, I include the variables NI_{it} and ΔNI_{it} because of their explanatory power for stock return (Easton & Harris, 1991; Ohlson, 1995). Therefore, I expect both variables to have a positive relationship with the proxy. Also similarly to the price model, I include, as control variables, industry dummy variables ($IndustryDummies_{it}$).

I use both the price model and the return model to obtain more robust and definitive findings (Kothari & Zimmerman, 1995), and to really understand if KAM's disclosure has value-relevance.

4.3.2. Event Study

Besides the association study, my analysis also includes an event study, which is a methodology that has been used by many researchers to analyze market reactions to different events (Kothari & Warner, 2007). An event study "infers whether an event, such as an earnings announcement, conveys new information to market participants as reflected in changes in the level or variability of security prices or trading volume over a short time period around the event" (Kothari, 2001). According to Utrero-González and Callado-Muñoz (2015) this methodology has an underlying assumption that "new public information in continually assessed, valued and reflected in the stock price".

As previously stated, one of the objectives of this analysis is to study investors' reactions to KAM's disclosure. With the help of an event study, since KAM disclosure represents a defined event, I can investigate its effect in stock's price. Therefore, I use the CAR's model, i.e., Cumulative Abnormal Returns' model. To estimate the CAR, I proceed in two stages, first determining the expected return, and then the AR.

To determine the expected return, I use a valuation model corrected to control the conditional heteroskedasticity of financial returns, through a GARCH (1,1) (Bollerslev, Engle & Nelson, 1994). Thus, I use the following model (3), which relates the return of certain stock to the market return (Utrero-González & Callado-Muñoz, 2015):

$$R_{it} = \beta_0 + \beta_1 R_{mt} + \varepsilon_{it} \quad (3)$$

where:

R_{it} – Return of stock for company *i*, in year *t*;

R_{mt} – Market Return in year *t*;

In the expected return I use an estimation window made of 140 to 20 days before the event, which represents a long period (121 days). Also, since this window ends 20 days before the event, "the risk that the estimated returns are affected by information about the event is minimized" (Utrero-González & Callado-Muñoz, 2015).

After determining the expected return, I calculate the AR originated by the event, which is defined as "the difference between the actual and predicted returns during the event window ($AR_{it} = R_{it} - E(R_{it})$)" (Utrero-González & Callado-Muñoz, 2015, p. 5). In this calculation, as used by previous literature (e.g., Blay and Geiger, 2001; Amoah Anderson, Boneparte & Meyer, 2018), I use a window with three days around the event date, i.e., $t = (-1, 1)$. The average AR for each day of the event day is computed by the following equation (4):

$$AR_t = \left(\frac{1}{N}\right) \sum AR_{it} \tag{4}$$

The Cumulative abnormal returns (CAR) is determined with the following equation (5):

$$CAR_t = \sum AR_t \tag{5}$$

Finally, after determining the CAR with the help of the platform *EventStudyTools* (Schimmer, Levchenko & Müller, 2015), to study investors' reactions to KAM's disclosure in a short-period, as used in previous literature (e.g., Lennox et al., 2019), I use the following equation (6):

$$CAR_{it} = \beta_0 + \beta_1 NKAM_{it} + \beta_2 LMV_{it} + \beta_3 ROA_{it} + \beta_4 LOSS_{it} + \beta_5 BTM_{it} + \beta_6 LEV_{it} + \beta_7 \Delta NI_{it} + \beta_8 BIG4_{it} + \beta_9 IndustryDummies_{it} + \varepsilon_{it} \tag{6}$$

where:

CAR_{it} – Cumulative abnormal return company *i*, in year *t*;

$NKAM_{it}$ – Number of KAM disclosed for company *i*, in year *t*;

LMV_{it} – Natural logarithm of market value company *i*, in year *t*.

ROA_{it} – Return-on-assets for company *i*, in year *t*;

$LOSS_{it}$ – Dummy variable that equals 1 if net income is negative and 0 otherwise, for company *i*, in year *t*;

BTM_{it} – Ratio between market value and equity for company *i*, in year *t*;

LEV_{it} – Ratio between total liabilities and total assets for company *i*, in year *t*;

ΔNI_{it} – Variation of net income per share for company *i*, in year *t*.

$BIG4_{it}$ – Dummy variable that equals 1 if the audit firm is a BIG 4 (i.e., PwC, Deloitte, KPMG and EY) and 0 otherwise, for company *i*, in year *t*;

This regression model includes, besides the variable CAR_{it}, and the interest variable $NKAM_{it}$, control variables to account for other factors that might affect the CAR.

Similar to previous event study research, I include some variables to control for companies' profitability (ROA_{it} and $LOSS_{it}$) and financial leverage (LEV_{it}) (Badertscher, Hribar & Jenkins, 2011; Amoah et al., 2018; Harakeh, Lee & Walker, 2019). I expect the variables ROA_{it} and $LOSS_{it}$, and LEV_{it}, to have a negative, and positive relationship, with CAR_{it} respectively.

Furthermore, following previous research for this area I also include as control variables BTM_{it}, LMV_{it}, ΔNI_{it} and $BIG4_{it}$, but I do not have an expectation about their relationship with CAR_{it}. Finally, as in the association study's models, I also include, as control variables, industry dummy variables ($IndustryDummies_{it}$), to control the industry fixed effects.

4.4. Audit quality

Audit quality can be studied through various ways (Hoitash et al, 2007; Knechel et al., 2013; DeFond & Zhang, 2014), since authors still do not have an overall consensus on the proper measure. In this thesis, the proxy used to study KAM's disclosure effect on audit quality is the absolute value of discretionary accruals, DA_{it}, which is a measure believed to capture audit quality (Gutierrez et al., 2018), in the sense that it as an inverse relation with audit quality, i.e., as discretionary accruals decrease, audit quality increases (DeFond & Zhang, 2014). Previous studies have also used this measure in audit quality's research (e.g., Becker, Defond, Jiambalvo & Subramanyam, 1998; Chung & Kallapur, 2003; Lawrence, Minutti-Meza & Zhanget, 2011)

According to Jones' (1991) expectations model, total accruals have two accruals' components, the nondiscretionary accruals and the discretionary accruals. The former is a function of changes in revenues (ΔREV) and Property, Plant and Equipment (PPE), intended to control changes in companies' economic circumstances. The latter represents a measure of managers' earnings manipulation, i.e., "a metric for assessing the degree of biasness infused in the financial statements by management and tolerated

by the auditor" (Hoitash et al., 2007, p. 767), which, as previously stated, will be my proxy.

Over the years, various authors have proposed adjustments to Jones' (1991) model in an attempt to overcome its limitations. In this study I used the modified Jones' (1991) model of Kothari et al. (2005), which is based on a performance-adjusted approach, since their results showed this model produces better specified tests. Kothari et al.'s (2005) model has also been widely used in previous literature.

Therefore, due to prior evidence of a correlation between discretionary accrual and company performance (e.g., Dechow, Sloan & Sweeney, 1995; Kothari et al., 2005), in Kothari et al. (2005) modified model the authors proposed the inclusion of return-on-assets (ROA) to control the effect of companies' performance. Furthermore, the performance matching is also done by companies' industry, i.e., their SIC-Codes. Thus, first, to estimate total accruals, I use the following equation (7):

$$TA_{it} = (\Delta CA_{it} - \Delta C_{it}) - (\Delta CL_{it} - \Delta SD_{it}) - DEP_{it} \quad (7)$$

where:

TA_{it} – Total Accruals for company *i*, in year *t*;

ΔCA_{it} – Changes in current assets for company *i*, in year *t*;

ΔC_{it} – Changes in cash for company *i*, in year *t*;

ΔCL_{it} – Changes in current liabilities for company *i*, in year *t*;

ΔSD_{it} – Changes in short debt for company *i*, in year *t*;

DEP_{it} – Depreciation for company *i*, in year *t*;

After that, I estimate the discretionary accruals, which are the residuals of the following equation (8):

$$(TA_{it} / A_{i(t-1)}) = \beta_0 + \beta_1(1/ A_{i(t-1)}) + \beta_2(\Delta REV_{it} / A_{i(t-1)}) + \beta_3(PPE_{it} / A_{i(t-1)}) + \beta_4 ROA_{it} + \varepsilon_{it} \quad (8)$$

where:

TA_i – Total accruals for company *i*, in year *t*;

$A_{i(t-1)}$ – Total assets for company *i*, in year *t-1*;

ΔREV_{it} – Changes in revenues for company *i*, from year *t-1* to year *t*;

PPE_{it} – Property, plant and equipment for company *i*, in year *t*;

ROA_{it} – Return-on-assets for company *i*, in year *t*;

Besides ROA_{it}, each variable of the previous equation is lagged by the total assets from the previous year ($A_{i(t-1)}$) to eliminate any heteroscedasticity problems. The discretionary accruals from industry with SIC-Codes 1, 2 and 3, were calculated together, since each of them had less than 20 companies in the sample.

Finally, audit quality is estimated with the following equation (9):

$$DA_{it} = \beta_0 + \beta_1 NKAM_{it} + \beta_2 SIZE_{it} + \beta_3 ROA_{it} + \beta_4 LOSS + \beta_5 BTM_{it} + \beta_6 LEV_{it} + \beta_7 CFO_{it} + \beta_8 BIG4_{it} + \beta_9 TA_{it} + \beta_{10} IndustryDummies_{it} + \varepsilon_{it} \quad (9)$$

where:

DA_{it} – Absolute value of discretionary accruals for company *i*, in year *t*;

$NKAM_{it}$ – Number of KAM disclosed for company *i*, in year *t*;

$SIZE_{it}$ – Natural logarithm of total assets for company *i*, in year *t*;

ROA_{it} – Return-on-Assets for company *i*, in year *t*;

$LOSS_{it}$ – Dummy variable that equals 1 if net income is negative and 0 otherwise, for company *i*, in year *t*;

BTM_{it} – Ratio between market value and equity for company *i*, in year *t*;

LEV_{it} – Ratio between total liabilities and total assets for company *i*, in year *t*;

CFO_{it} – Ratio between CFO and total assets for company *i*, in year *t*;

$BIG4_{it}$ – Dummy variable that equals 1 if the audit firm is a BIG 4 (i.e., PwC, Deloitte, KPMG and EY) and 0 otherwise, for company *i*, in year *t*;

TA_{it} – Ratio between total accruals and total assets for company *i*, in year *t*.

Besides the variable DA_{it}, the proxy to study audit quality, and $NKAM_{it}$, the interest variable, the regression model also includes control variables which, according to previous literature, help to control for other factors that might affect discretionary accruals (e.g., size, audit risk and complexity).

The variable $SIZE_{it}$ is used to control for the size of each company, and I expect that as the size increases, the audit quality will also increase (Myers, Myers & Omer, 2003; Menon & Williams, 2004, Krishnan, Wen & Zhao, 2011), due to possible greater levels of analysis and inspection of the financial statements. Thus, I expect variables $SIZE_{it}$

and DA_{it} to have a negative relationship. In addition, similarly to Prawitt, Smith and Wood (2009), I also include the variable BTM_{it} to control for company growth, however without any expectations regarding its relationship with the variable DA_{it}.

The variable LEV_{it} is included to control for the companies' leverage, since higher levels of leverage lead to lower audit quality, due to greater earnings management and, consequently, discretionary accruals (Becker et al. 1998), while the variable CFO_{it} is included to control for the negative correlation between accruals and cash flow already known (e.g., Myers et al., 2003, Dechow, 1994; Gul, Fung & Jaggi, 2009).

According to previous studies, companies examined by non-BIG 4 have higher discretionary accruals (Becker et al., 1998; Francis, Maydew & Sparks, 1999), which is why I also include the dummy variable $BIG4_{it}$. Hence, I expect companies to have higher audit quality if they are audited by BIG4.

Similarly to Butler, Leone and Willenborg (2004) study, I include the variable ROA_{it} to control for possible variations in accruals resulting from companies' performance, as companies with lower performance tend to manage earnings, and, thus, to have higher discretionary accruals (Prawitt et al., 2009). Therefore, I expect that as ROA_{it} decreases, DA_{it} increases. For the same reason, I also include the variable $LOSS_{it}$, as a control variable, since companies with losses (i.e., negative income) tend to use more earnings' management (Prawitt et al., 2009), which lowers audit quality. I expect that, when the variable $LOSS_{it}$ equals 1, DA_{it} increases.

Furthermore, similarly to Frankel, Johnson and Nelson (2002), I also include the variable TA_{it} to attempt to extract any nondiscretionary accruals correlated to company performance that could still be a part of this discretionary accruals model, however I do not have any expectations regarding its relationship with the variable DA_{it}.

Finally, I also include, as control variables, dummy variables for industry ($IndustryDummies_{it}$) to control for possible differing levels of discretionary accruals by industry (Barth, Cram & Nelson, 2001).

4.5. Audit fees

To assess KAM's disclosure effect on audit fees, I use the logarithm of audit fees, which is a measure used in previous research in audit fees (Gutierrez et al., 2018; Bédard et al., 2019; Liao et al., 2019). For this analysis I use the following equation (10):

$$AFEES_{it} = \beta_0 + \beta_1 NKAM_{it} + \beta_2 SIZE_{it} + \beta_3 ROA_{it} + \beta_4 LOSS + \beta_5 BTM_{it} + \beta_6 LEV_{it} + \beta_7 CFO_{it} + \beta_8 BIG4_{it} + \beta_9 INV_{it} + \beta_{10} FSALES_{it} + \beta_{11} IndustryDummies + \varepsilon_{it} \quad (10)$$

where:

$AFEES_{it}$ – Natural logarithm of audit fees for company *i*, in year *t*;

$NKAM_{it}$ – Number of KAM disclosed for company *i*, in year *t*;

$SIZE_{it}$ – Natural logarithm of total assets for company *i*, in year *t*;

ROA_{it} – Return-on-Assets for company *i*, in year *t*;

$LOSS_{it}$ – Dummy variable that equals 1 if net income is negative and 0 otherwise, for company *i*, in year *t*;

BTM_{it} – Ratio between market value and equity for company *i*, in year *t*;

LEV_{it} – Ratio between total liabilities and total assets for company *i*, in year *t*;

CFO_{it} – Ratio between CFO and total assets for company *i*, in year *t*;

$BIG4_{it}$ – Dummy variable that equals 1 if the audit firm is a BIG 4 (i.e., PwC, Deloitte, KPMG and EY) and 0 otherwise, for company *i*, in year *t*;

INV_{it} – Ratio between inventory and total assets for company *i*, in year *t*;

$FSALES_{it}$ – Ratio between foreign sales and total assets for company *i*, in year *t*;

Besides the variable $AFEES_{it}$, my proxy for this study, and the variable $NKAM_{it}$, the interest variable, the regression model also includes control variables with the purpose discussed in the previous sections.

The variable $SIZE_{it}$ is included to control for the impact of the company size in audit fees (Simunic, 1980; Hay, Knechel & Wong, 2006), and I expect that as the auditee size increases, audit fees also increase.

The variable ROA_{it} is included to control for audit risk. Accordingly, previous research showed that company profitability is related to audit fees, since companies with lower results have increased audit risk and, consequently, increased audit fees (Hay et al., 2006). For this reason, I expect a negative relationship between ROA_{it} and $AFEES_{it}$. In the same way, the variable $LOSS_{it}$ also controls for audit risk, as companies with losses represent a bigger risk (Simunic, 1980; Francis, Reichelt & Wang, 2005b; Fung, Gul & Krishman, 2012). Therefore, I expect a positive relationship between the variable $LOSS_{it}$ and audit fees (Francis & Wang, 2005a; Hay et al., 2006). The variable

LEV_{it} is also intended to control for possible risk, as companies with higher leverage represent a possible loss for the auditor, which increases audit risks (Francis et al., 2005a; Hay et al., 2006). Therefore, I expect a positive relationship between this variable and audit fees.

The variable INV_{it} controls companies' complexity arising from auditing these accounts, since they require additional specific audit procedures, which represents increased audit risk, and might result in higher audit fees (Simunic, 1980). I expect that companies with higher inventory, thus, more complex audits, will have higher audit fees (Francis et al., 2005a; Dao, Raghunandan & Rama, 2012). The variable $FSALES_{it}$ also controls for company complexity (Hay et al., 2006; Fung et al., 2012), and I expect that as foreign sales increases, the complexity of auditee's operations also increases, which results in higher audit fees (Francis et al., 2005a).

Similarly to Choi, Kim, Lu and Simunic (2009), I also include as a control variable $BIG4_{it}$ and I expect a positive relationship between this variable and audit fees, i.e., when a company is audited by a BIG4, audit fees are higher.

Finally, following Carcello and Li's (2013) model, I include as control variables BTM_{it} and CFO_{it}. Finally, and similar to the previous sections, I also include dummy variables for industry ($IndustryDummies_{it}$) to control for possible differences in audit fees between industries, since previous research argues that certain industries are more difficult to audit (Hay et al., 2006), which might result in higher audit fees because of this additional complexity.

5. RESULTS

5.1. Descriptive Statistics

5.1.1. Investors' reactions

Price model's descriptive statistics are presented in Table 5.1, panel A. According to these results, the variable *P*, my proxy, which represents the price per share, presents a mean of 28.757. Therefore, if every company had the same price per share, that value would be 28.757. In addition, the lowest price per share is 0.94, while the highest is 115.9. This variable also presents a standard deviation of 31.804, therefore, it has a large dispersion around the mean.

The results for the variable *NKAM* show that the smallest and highest number of KAM disclosed were 0 and 9, respectively. Furthermore, this variable presents a mean of 3.119, so if every company disclosed the same number of KAM that number would be 3.119, and a median of 3, which indicates that half of the companies disclose a maximum of three KAM. Lastly, since its standard deviation is 1.378, this variable has a small dispersion around the mean.

The variable *BV*, which represents the book-value per share, presents a mean of 12.543, thus, if every company had the same book-value per share, that value would be 12.543. In addition, the lowest book-value per share is 0.97, while the highest is 60.446. Furthermore, this variable presents a standard deviation of 15.179, so, similarly to *P*, *BV* also has a large dispersion around the mean. In the same way, the variable *NI*, with a mean of 1.752, a minimum of -0.226 and a maximum of 8.5, and a standard deviation of 2.274, presents a large dispersion around the mean.

Table 5.1, panel B, presents the descriptive statistics for the return model. The dependent variable *R*, which represents the return per share, presents a mean of 0.069, thus if every company had the same return per share, this value would be 0.069. In addition, the lowest return per share is -0.689, while the highest is 17.258, with a standard deviation of 0.945, presenting a large dispersion around the mean.

The results for the variable *NKAM* shows that if every company disclosed the same number of KAM, that number would be 3.156. Similarly to the price model, the smallest and highest number of KAM disclosed are 0 and 9, respectively. The standard deviation is 1.38, suggesting a small dispersion around the mean.

The variable *NI*, presents a mean of 2.252, indicating that, on average, the net income per share of every company is 2.252. It also presents a minimum and a

maximum of -50.972 and 129.544, respectively, and presents a large dispersion around the mean, since its standard deviation is 8.088. Likewise, the variable *VNI*, with a mean of 0.743, a minimum of -20.61, and a maximum of 180.502, presents a large dispersion around the mean, with a standard deviation of 9.144.

Lastly, the descriptive statistics for CAR's model are presented in Table 5.1, panel C. According to these, the variable *CAR*, the proxy, presents a mean of 0.008. Therefore, if every company had the same CAR's value, that value would be 0.008. In addition, the lowest CAR's value is -0.105, while the highest is 0.21. This variable also presents a standard deviation of 0.051, suggesting that, on average, CAR's value varies 0.051 around its mean. Therefore, this variable has a small dispersion around the mean.

The interest variable, *NKAM*, presents a mean of 3.101, and a median of 3, which, again, means that, if every company disclosed the same number of KAM, that number would be 3.101, and that half of companies disclose a maximum of three KAM, respectively. Furthermore, the smallest number of KAM disclosed is 1, while the highest is 7. This variable also presents a standard deviation of 1.221, which indicates a small dispersion around the mean.

The variable *LMV* presents a mean of 8.22, thus, if every company had the same market value, that value would be 3,715.323. The smallest and highest values of the natural logarithm of market value are 2.492, and 11.61, respectively, indicating that the smallest and highest market value in my sample are 12,081, and 110,188.741. This variable also presents a standard deviation of 1.887, which, similarly to the variables *CAR* and *NKAM*, indicates a small dispersion around the mean. When it comes to the variable *BTM*, which represents the ratio between the companies' market value and the equity, its mean is 0.003, thus, on average, the market value of every company represents only 0.3% of their equity. With a standard deviation of 0.003, this variable presents a large dispersion around the mean.

The variable *ROA* presents a mean of 0.06 and a minimum and maximum of -0.108, and 0.322, respectively. Furthermore, with a standard deviation of 0.065, this variable also presents a large dispersion around the mean. The financial leverage, represented by the variable *LEV*, presents a mean of 0.542, therefore, on average the total liabilities represent 54.2% of total assets from my sample's companies. In addition, the smallest and highest financial leverage are 4.7%, and 100.7%, respectively. Furthermore, this variable presents a standard deviation of 0.173, which also indicates a small dispersion around the mean.

The variable *ΔNI* presents a mean of 0.304, which indicates that if every company had the same variation in net income, this value would be 0.304, with a standard deviation of 2.24, this variable also presents a large dispersion around the mean.

The descriptive statistics for the qualitative variables, *LOSS* and *BIG4*, for the CAR model's analysis are presented in Table 5.1, panel D. The results for the variable *LOSS* show that 22 (7.914%) companies presented losses in their business year, and the results for the variable *BIG4* show that 266 (95.683%) of the total of observations correspond to companies audited for at least one BIG 4.

Table 5.1 – Descriptive statistics – Investors' reactions

Panel A: Descriptive statistics for quantitative variables – Price Model

Variables	Mean	Median	Minimum	Maximum	Standard deviation	N
P	28.757	17.464	0.940	115.900	31.804	430
NKAM	3.119	3.000	0.000	9.000	1.378	430
BV	12.543	6.517	0.970	60.446	15.179	430
NI	1.752	0.952	-0.226	8.500	2.274	430

Panel B: Descriptive statistics for quantitative variables – Return Model

Variables	Mean	Median	Minimum	Maximum	Standard deviation	N
R	0.069	-0.0004	-0.689	17.258	0.945	424
NKAMS	3.156	3.000	0.000	9.000	1.380	424
NI	2.252	0.958	-50.972	129.544	8.088	424
Δ*NI*	0.743	0.043	-20.610	180.502	9.144	424

Panel C: Descriptive statistics for quantitative variables – CAR

Variables	Mean	Median	Minimum	Maximum	Standard deviation	N
CAR	0.008	0.004	-0.105	0.210	0.051	278
NKAM	3.101	3.000	1.000	7.000	1.221	278
LMV	8.220	8.525	2.492	11.610	1.887	278
ROA	0.060	0.049	-0.108	0.322	0.065	278
BTM	0.003	0.002	-0.009	0.016	0.003	278
LEV	0.542	0.555	0.047	1.007	0.173	278
ΔNI	0.304	0.049	-3.985	18.054	2.247	278

Panel D: Descriptive statistics for qualitative variables – CAR

Variables		N	Frequency
LOSS	1	22	7.910%
	0	256	92.090%

BIG4	1	266	95.680%
	0	12	4.320%

5.1.2. Audit quality

Table 5.2, panel A provides the descriptive statistics of audit quality. The proxy used in this study, represented by the variable *DA*, presents a mean of 0.034, thus, if all companies presented the same absolute value of discretionary accruals, this value would be 0.034. Furthermore, this variable presents a standard deviation of 0.026, which indicates a large dispersion around the mean.

The number of KAM disclosed, represented by the variable *NKAM*, shows a mean of 3.212, and a median of 3, which, as previously referred, means that, if every company disclosed the same number of KAM, that number would be 3.212, and that half of companies disclosed a maximum of three KAM, respectively. The standard deviation for this variable is 1.367, which indicates a small dispersion around the mean.

The variable *SIZE* presents a mean of 15.459, thus, if every company had the same amount of assets, that value would be 5,172,568.854. Furthermore, since its minimum and maximum are, respectively, 11.942 and 18.253, in my sample the "smallest" company has 153,591.23 in assets, while the "largest" company has 84,569,141.47 in assets. With a standard deviation of 1.697, this variable also has a small dispersion around the mean.

The variable *ROA* presents a mean of 0.057, and a maximum and minimum of -0.021 and 0.173 of return-on-assets, respectively. This variable also presents a standard deviation of 0.048, which indicates a large dispersion around the mean.

The variable *BTM* presents a mean of 0.003 and a median of 0.002. The latter indicates that the market value of half of the companies in the sample only represent 0.2% of their respective equity. Similarly to *ROA*, this variable, with a standard deviation of 0.002, presents a large dispersion around the mean. In the same way, the variable *CFO*, with a mean of 0.102 and a standard deviation of 0.057, and the variable *TA*, with a mean of -0.043 and a standard deviation of 0.049, show a large dispersion around the mean.

The variable representing the financial leverage of each company, *LEV*, presents a mean of 0.556, thus, on average the total liabilities represent 55.6% of total assets from my sample's companies. The minimum and maximum presented by this variable are

0.272, and 0.816, respectively. Furthermore, this variable presents a standard deviation of 0.146, which, similarly to the variables *NKAM*, and SIZE, indicates a small dispersion around the mean.

The descriptive statistics for the qualitative variables, *LOSS* and *BIG4*, for the audit quality analysis are presented Table 5.2, panel B. The outputs for the variable *LOSS* show that, from the 396 observations included in the audit quality sample, 34 (8.59%) correspond to companies with losses in their business year. The variable *BIG4* shows that 383 (96.72%) of the total of observations correspond to companies audited for at least one BIG 4.

Table 5.2 – Descriptive statistics – Audit quality

Panel A: Descriptive statistics for quantitative variables – Audit quality

Variables	Mean	Median	Minimum	Maximum	Standard deviation	N
DA	0.034	0.028	0.000	0.089	0.026	396
NKAM	3.212	3.000	1.000	9.000	1.367	396
SIZE	15.459	15.587	11.942	18.253	1.697	396
ROA	0.057	0.047	-0.021	0.173	0.048	396
BTM	0.003	0.002	0.001	0.007	0.002	396
LEV	0.556	0.555	0.272	0.816	0.146	396
CFO	0.102	0.091	0.002	0.235	0.057	396
TA	-0.043	-0.042	-0.145	0.059	0.048	396

Panel B: Descriptive statistics for qualitative variables – Audit quality

Variables		N	Frequency
LOSS	1	34	8.590%
	0	362	91.410%
BIG4	1	383	96.720%
	0	13	3.280%

5.1.3. Audit fees

Table 5.3, panel A presents the descriptive statistics for audit fees, with a sample of 352 observations. The dependent variable *AFEES* presents a mean of 7.561, thus if every company had the same value of audit fees, that value would be 1,921.349. The minimum and maximum value for this variable, are, respectively, 4.871 and 10.125. Furthermore, this variable also presents a standard deviation of 1.521. Therefore, *AFEES* has a small dispersion around the mean.

The interest variable, *NKAM* has a mean of 3.233, indicating that if every company disclosed the same number of KAM, that value would be 3.233. The minimum number of KAM disclosed is 1, while the maximum is 8. Moreover, since its median is 3, half of the companies disclose a maximum of three KAM. With a standard deviation of 1.306, this variable also has a small dispersion around the mean.

The variable *SIZE* presents a mean of 15.735, so if every company had the same amount of assets, that value would be 6,818,683.664. This variable, with a minimum and a maximum of 12.894 and 18.541, respectively, presents a standard deviation of 1.49, which indicates a small dispersion around the mean.

The variable *ROA* which, again, represents the return on assets for each company, presents a mean of 0.06, and a standard deviation of 0.049, thus, this variable has a large dispersion around the mean. The variable *BTM*, which represents the ratio between the companies' market value and the equity, presents a mean of 0.003, thus, on average the market value of every company represents only 0.3% of their equity. With a standard deviation of 0.002, this variable also presents a large dispersion around the mean.

The variable *LEV*, which represents the financial leverage of each company, presents a mean of 0.551, thus, on average the total liabilities represent 55.1% of total assets from my sample's companies. In addition, the smallest and highest financial leverage are 0.246, and 0.803, respectively. Furthermore, this variable presents a standard deviation of 0.149, which, similarly to the variables *AFEES*, *NKAM*, and *SIZE*, also indicates a small dispersion around the mean.

The variable *INV* presents a mean of 0.087, suggesting that if every company had the same proportion of inventory in total assets, that value would be 8.7%. This variable also presents a standard deviation of 0.074, which, similarly to variables *ROA*, and *BTM*, indicates a large dispersion around the mean.

Lastly, the variables *CFO*, and *FSALES*, with a mean of 0.104, and 0.498, and a standard deviation of 0.055, and 0.347, respectively, also show a large dispersion around the mean.

The descriptive statistics for the qualitative variables, *LOSS* and *BIG4*, for the audit fees' analysis are presented in Table 5.3, panel B. The results for the variable *LOSS* show that 26 (7.386%) companies presented losses in their business year, and the results for the variable *BIG4* show that 341 (96.875%) of the total of observations correspond to companies audited for at least one BIG 4.

Table 5.3 – Descriptive statistics – Audit fees

Panel A: Descriptive statistics for quantitative variables – Audit fees

Variables	Mean	Median	Minimum	Maximum	Standard deviation	N
AFEES	7.561	7.624	4.871	10.125	1.521	352
NKAM	3.233	3.000	1.000	8.000	1.306	352
SIZE	15.735	15.732	12.894	18.541	1.490	352
ROA	0.060	0.049	-0.020	0.181	0.049	352
BTM	0.003	0.002	0.001	0.008	0.002	352
LEV	0.551	0.552	0.246	0.803	0.149	352
CFO	0.104	0.091	0.018	0.235	0.055	352
INV	0.087	0.075	0.0001	0.234	0.074	352
FSALES	0.498	0.462	0.000	1.185	0.347	352

Panel B: Descriptive statistics for qualitative variables – Audit fees

Variables		N	Frequency
LOSS	1	26	7.390%
	0	326	92.610%
BIG4	1	341	96.880%
	0	11	3.220%

5.2. Correlations

The correlation coefficients for price are presented in Table 5.4, panel A, which, with the exception of the relationship between *P* and *BV* (0.803), and *NI* and *BV* (0.830), show no problems of multicollinearity, since all the coefficients are below 0.800 (Judge, G. G., Griffiths, W. E., Hill, R. C., Lütkepohl, H., & Lee, T.-C., 1988). Furthermore, as expected, the correlations between *P* and *NI*, and *P* and *BV* present a positive statistically significant relationship.

Table 5.4, panel B presents the correlation coefficients for the return model and shows no problems of multicollinearity, since all the coefficients are below 0.800 (Judge et al., 1988) However, the correlations between *R* and the independent variables of the return model are not statistically significant, thus, I cannot conclude whether their relationship corresponds with my expectations.

For the CAR model, the correlation coefficients are presented in Table 5.4, panel C, showing no problems of multicollinearity, since all the coefficients are below 0.800 (Judge et al., 1988). However, similarly to the return model, the correlations between

CAR and the independent variables are not statistically significant, thus, I cannot conclude whether their relationship corresponds with my expectations.

The correlation coefficients for audit quality are presented in Table 5.5, showing no problems of multicollinearity, since all the coefficients are below 0.800 (Judge et al., 1988). Furthermore, from the statistically significant correlations between *DA* and the independent variables from the audit quality's study, only the relationship between *DA* and *SIZE* corresponds to my expectations. Meanwhile, the correlation between *DA* and *SIZE*, contrary to my expectations presents a statistically significant negative relationship.

Table 5.6 presents the correlation coefficients for audit fees. Except for the correlation between *AFEES* and *SIZE* (0.805), and *ROA* and *CFO*, (0.8002), the results show no problems of multicollinearity, since all the coefficients are below 0.800 (Judge et al., 1988). Furthermore, all the statistically significant correlations between *AFEES* and the independent variables from this study are consistent with my previous expectations.

Table 5.4 – Pearson correlations coefficients – Investors' reactions

Panel A: Price Model

	P	*NKAM*	*BV*	*NI*
P	1			
NKAM	-0.004	1		
BV	0.803***	0.095**	1	
NI	0.794***	0.039	0.830***	1

*** significant at a 0.01 level; ** significant at a 0.05 level; * significant at a 0.10 level.

Panel B: Return Model

	R	*NKAMS*	*NI*	Δ*NI*
R	1			
NKAMS	0.036	1		
NI	-0.036	-0.019	1	
Δ*NI*	-0.012	-0.003	0.740***	1

*** significant at a 0.01 level; ** significant at a 0.05 level; * significant at a 0.10 level.

Panel C: CAR

	CAR	*NKAM*	*LMV*	*ROA*	*LOSS*	*BTM*	*LEV*	*ΔNI*	*BIG4*
DA	1								
NKAM	-0.019	1							
SIZE	-0.083	0.274***	1						

ROA	-0.065	-0.131**	0.141**	1					
LOSS	0.005	-0.035	-0.132**	-0.490***	1				
BTM	-0.035	-0.139**	0.173***	0.401***	-0.064	1			
LEV	-0.056	0.235***	0.123**	-0.156***	-0.104*	-0.183***	1		
ΔNI	-0.070	0.006	0.119**	0.205***	-0.013	-0.013	-0.043	1	
BIG4	0.017	0.149**	0.360***	0.069	-0.003	-0.032	-0.065	0.028	1

*** significant at a 0.01 level; ** significant at a 0.05 level; * significant at a 0.10 level.

Table 5.5 – Pearson correlations coefficients – Audit quality

	DA	*NKAM*	*SIZE*	*ROA*	*LOSS*	*BTM*	*LEV*	*CFO*	*BIG4*	*TA*
DA	1									
NKAM	-0.0002	1								
SIZE	-0.255***	0.350***	1							
ROA	0.061	-0.260***	-0.189***	1						
LOSS	0.053	0.032	-0.138***	-0.471***	1					
BTM	0.062	-0.188***	-0.206***	0.460***	-0.002	1				
LEV	-0.047	0.297***	0.324***	-0.342***	0.024	0.084*	1			
CFO	0.036	-0.236***	-0.212***	0.780***	-0.343***	0.381***	-0.260***	1		
BIG4	-0.113**	0.164***	0.270***	-0.010	0.056	0.052	0.145***	0.031	1	
TA	0.093*	-0.020	0.067	0.019	-0.024	-0.064	-0.150***	-0.240***	-0.009	1

*** significant at a 0.01 level; ** significant at a 0.05 level; * significant at a 0.10 level.

Table 5.6 – Pearson correlations coefficients – Audit fees

	AFEES	*NKAM*	*SIZE*	*ROA*	*LOSS*	*BTM*	*LEV*	*CFO*	*BIG4*	*INV*	*FSALES*
AFEES	1										
NKAM	0.262***	1									
SIZE	0.805***	0.347***	1								
ROA	-0.184***	-0.291***	-0.274***	1							
LOSS	-0.008	0.083	-0.106**	-0.435***	1						
BTM	-0.110**	-0.213***	-0.287***	0.487***	0.034	1					
LEV	0.341***	0.279***	0.380***	-0.330***	-0.016	0.048	1				
CFO	-0.271***	-0.220***	-0.291***	0.8002***	-0.319***	0.435***	-0.248***	1			
BIG4	0.265***	0.232***	0.245***	-0.008	0.051	0.021	0.217***	0.025	1		
INV	0.007	-0.035	-0.114**	0.117**	-0.028	0.048	-0.100*	0.020	-0.028	1	
FSALES	0.265***	-0.061	-0.015	0.253***	-0.095*	0.259***	-0.001	0.140***	0.021	0.555***	1

*** significant at a 0.01 level; ** significant at a 0.05 level; * significant at a 0.10 level.

5.3. Multivariate Analysis

In order to ensure the quality of my study, and because of the nature of the data in the sample, the regression models presented use paned data options. Thus, I present in

Table 5.6 and 5.7, the fixed effects model and the random effects model, respectively, of the equations used.

To choose which of the two models to analyze, and to ensure the underlying endogeneity assumption of panel data, I used the correlated random effects - Hausman test, presented in Appendix A. According to this test, the fixed effects model is more appropriate if the p-value is statically significant, otherwise, the random effects model is more appropriate.

5.3.1. Investors' reactions

The regression results for the price model are presented in Table 5.6, since the Hausman test, presented in Appendix A, indicates that the fixed effects model is more appropriate. According to the results, 95.1% of the variance of the variable *P* is explained by the regression model, i.e., by the independent variables included.

On the one hand, the coefficient for the first interest variable *NKAM*NI* ($\beta = 1.026$; sig < 0.1) is statistically significant, thus, KAM reliably reflect risks for net income, and are informative for investors, since the relationship with *P* is positive. The results presented are consistent with Lennox et al.'s (2019) findings, who finds that KAM's disclosure accurately reflects investors' perceptions of risks in earnings.

On the other hand, the coefficient for the second interest variable *NKAM*BV* ($\beta = -0.052$; sig > 0.1) does not present a statistically significant relationship with price per share, thus, this disclosure is not a reliable indicator of risks for book-value. However, the lack of market reaction can also happen because investors are already aware of the risks disclosed in KAM through previous disclosures or because they believe that the auditor performed the necessary work to mitigate these risks (Gutierrez et al., 2018). The latter results are not consistent with Lennox et al.'s (2019) findings, who finds that KAM's disclosure accurately reflects investors' perceptions of risks in net assets.

The variable *NKAM* ($\beta = 0.04$; sig > 0.1) and the variable *BV* ($\beta = -0.016$; sig > 0.1) are also not a statistically significant predictor for *P*. However, the results for the variable *NI* ($\beta = -1.939$; sig < 0.1) show a statistically significant negative relationship with the variable *P*, thus, contrary to my expectations, when the net income per share increases, the price per share decreases.

As previously mentioned, for the association study I also use the return model. The regression results for this model are presented in Table 5.6, since the Hausman test,

presented in Appendix A, indicates that the fixed effects model is more appropriate for the return model. According to the results, only 0.2% of the variance of the variable *R* is explained by the independent variables, i.e., by the regression model.

The results for the coefficients of my interest variables show that both *NKAM*NI* (β = -0.036; sig > 0.1), and *NKAM*VNI* (β = 0.03; sig > 0.1) are not statistically significant for *R*, but, the variable *NKAM* (β = -0.34; sig < 0.1), is statistically significant for *R*. Based on this result, I could conclude that KAM's disclosure increases companies' return per share and, consequently, has an effect on investors' reactions, however, the results for *NKAM*NI* (β = -0.036; sig > 0.1), and *NKAM*VNI* (β = 0.03; sig > 0.1) suggest that KAM do not reliably reflect risks for net income and for the variation of net income, and are not informative for investors, since its relationship with *R* is not significant. As referred in the price model, these lack of reactions from the market can also occur because investors are already informed about these risks included in the KAM through previous disclosures and/or because investors believe that the auditor adressed the disclosed risks. The remaining variables, *NI* (β = 0.09; sig > 0.1), *VNI* (β = -0.068; sig > 0.1) are also not statistically significant for *R*.

Lastly, the regression results for the CAR model are presented in Table 5.7, since the Hausman test, presented in Appendix A, indicates that the random effects model is more appropriate. According to this CAR model's regression results, about 3.329% of the variance of the variable *CAR* is explained by the regression model, i.e., by the independent variables.

The interest variable, *NKAM* (β = 0.0003; sig > 0.1), is not statistically significant for *CAR*, therefore, I can conclude that KAM's disclosure does not affect investors' reactions in the short term, which is consistent with previous literature (Gutierrez et al., 2018; Bédard et al., 2019; Lennox et al., 2019; Liao et al., 2019), who finds that this disclosure do not affects investors' reactions in short-term. As previously referred, the lack of reactions from the market can happened because the risks disclosed in the KAM are not relevant, because investors are already informed about these risks through previous disclosures, or because of investors belief that the auditor adressed these risks.

The variable *BIG4* (β = 0.036; sig < 0.1) is statistically significant, and positive; hence, when a company is audited by a BIG 4, the CAR's value increases, therefore, there is a positive reaction from investors.

The remaining control variables included in this model *LMV* (β = -0.003; sig > 0.1), *ROA* (β = -0.063; sig > 0.1), *LOSS* (β = -0.011; sig > 0.1), *BTM* (β = -0.38; sig > 0.1), *LEV* (β = -0.019; sig > 0.1), and, *ΔNI* (β = -0.001; sig > 0.1) are not statistically significant for *CAR*, therefore, I cannot conclude about their effect.

5.3.2. Audit quality

The regression results for KAM's disclosure effect on audit quality are presented in Table 5.7, since the Hausman test, presented in Appendix A, indicates that the " is more appropriate. According to this table, only around 11.34% of the variance of the variable *DA* is explained by the independent variables, i.e., by the regression model.

The interest variable, the variable *NKAM* (β = 0.001; sig > 0.1) is not statistically significant for absolute value of discretionary accruals, thus, KAM's disclosure has no effect on audit quality, which is consistent with the findings of Bédard et al. (2019), Liao et al. (2019) and Reid et al. (2019), who finds that this disclosure has no impact on audit quality. The lack of effect on audit quality can happened because KAM's disclosure does not increase the time resources and audit effort needed to conclude and audit (Bédard et al., 2019) or time pressure around reporting deadlines.

The control variables *SIZE* (β = -0.005; sig < 0.1), which controls company size, and *TA* (β = 0.082; sig < 0.1), included to extract any residual nondiscretionary accruals correlated to company performance a part of this discretionary accruals model, are statistically significant.

As expected, the variable *SIZE* presents a negative coefficient (β = -0.005), which means that, as the companies' *SIZE* increases, discretionary accruals become smaller, thus, audit quality increases. In the opposite way, the variable *TA*, regarding which I did not have any expectations, presents a positive coefficient (β = 0.082), suggesting that companies with higher total accrual, also have higher discretionary accruals and, consequently, lower audit quality.

The remaining control variables *ROA* (β = 0.084; sig > 0.1), *LOSS* (β = 0.007; sig > 0.1), *BTM* (β = -0.004; sig > 0.1), *LEV* (β = 0.01; sig > 0.1), *CFO* (β = -0.022; sig > 0.1) and *BIG4* (β = -0.008; sig > 0.1) are not statistically significant for discretionary accruals, thus, I cannot conclude about their relationship with audit quality.

5.3.3. Audit fees

The regression results for KAM's disclosure effect on audit fees are presented in Table 5.6, since the Hausman test, presented in Appendix A, indicates that the fixed effects model is more appropriate. According to the results, 97.749% of the variance the variable *AFEES* is explained by the independent variables, i.e., by the regression model.

The variable *NKAM* (β = -0.001; sig > 0.1) is not statistically significant for *AFEES*, therefore, KAM's disclosure has no significant effect in audit fees, which is consistent with the findings from Gutierrez et al. (2018) and Liao et al. (2019), who also finds that this disclosure has no impact on audit fees. According to Bédard et al. (2019), who study the impact of the new reporting requirements in the United Kingdom, the lack of association with an increase on audit fees can happen because auditors might absorb any costs resulting from additional time or audit effort needed.

The control variables *SIZE* (β = 0.56; sig < 0.1), included to control the impact of companies' size, *LEV* (β = 1.45; sig < 0.1), included to control for possible risk, and *CFO* (β = -3.214; sig < 0.1), are statistically significant for *AFEES*.

First, the variable *SIZE* (β = 0.56; sig < 0.1) has a positive statistically significant relationship with the natural logarithm of audit fees, which is consistent with my expectations. Therefore, when the companies' size increases, audit fees also increase. Next, the variable *LEV* (β = 1.45; sig < 0.1) also has a positive statistically significant relationship with the variable *AFEES*, which is also in accordance with my expectations. Thus, as company leverage increases, audit risks also increase, and auditors charge higher audit fees. Lastly, for the variable *CFO* (β = -3.214; sig < 0.1), for which I did not have any expectations, when the cash-flow from operations increases, audit fees decrease, since these variables have a statistically significant negative relationship.

The remaining control variables, i.e., the variables *ROA* (β = 0.993; sig > 0.1), *LOSS* (β = 0.03; sig > 0.1), *BTM* (β = -10.359; sig > 0.1) *BIG4* (β = -0.081; sig > 0.1), *INV* (β = -0.536; sig > 0.1), and *FSALES* (β = 0.139; sig > 0.1), are not statistically significant, hence, I cannot conclude about their relationship with audit fees.

Table 5.7 - Multivariate analysis – Fixed effects model

Variables	Prediction	*P* Coefficient (*t*-stats)	*R* Coefficient (*t*-stats)	*CAR* Coefficient (*t*-stats)	*|DA|* Coefficient (*t*-stats)	*AFEES* Coefficient (*t*-stats)
Intercept		28.635 (7.505)***	-0.978 (-2.977)***	0.007 (0.229)	-0.256 (-1.423)	-1.694 (-0.568)
NKAM		0.040 (0.047)	0.340 (3.406)***	0.005 (1.327)	-0.001 (-0.575)	-0.001 (-0.054)
BV	+	-0.016 (-0.065)				
NI	+/+	-1.939 (-1.904)*	0.090 (1.131)			
*NKAM*BV*		-0.052 (-1.054)				
*NKAM*NI*		1.026 (3.579)***	-0.036 (-1.615)			
ΔNI			-0.068 (-1.105)	0.001 (0.461)		
*NKAM*ΔNI*			0.030 (1.568)			
LMV				-0.004 (-1.707)*		
ROA	−/−/−			-0.113 (-1.205)	0.188 (1.894)*	0.993 (0.957)
LOSS	−/−/+			-0.028 (-1.468)	0.010 (1.117)	0.030 (0.271)
BTM				-1.251 (-0.698)	-0.508 (-0.205)	-10.360 (-0.365)
LEV	+/+/+			-0.016 (-0.612)	0.151 (2.866)***	1.450 (2.120)***
BIG4	/+/+			0.046 (2.071)**	-0.004 (-0.208)	-0.081 (-0.247)
SIZE	−/+				0.014 (1.211)	0.560 (2.935)***
CFO	−				-0.107 (-1.077)	-3.214 (-2.712)***
TA					0.081 (1.840)*	
INV	+					-0.536 (-0.415)
FSALES	+					0.139 (0.584)
N		430	424	278	396	352
Adjusted R^2		0.951	0.002	0.030	0.316	0.977
F-value		39.151***	1.004	1.059	1.868***	83.390***

This table shows the coefficients and *t*-statistics for the investors' reaction (price, return and CAR), audit quality (discretionary accruals) and audit fees. ***, **, * indicate statistical significance from two-tailed tests at 0.01, 0.05, and 0.1, respectively.

Table 5.8 - Multivariate analysis – Random effects model

Variables	Prediction	*P* Coefficient (*t*-stats)	*R* Coefficient (*t*-stats)	*CAR* Coefficient (*t*-stats)	*|DA|* Coefficient (*t*-stats)	*AFEES* Coefficient (*t*-stats)
Intercept		22.237 (5.835)***	0.486 (2.662)***	0.020 (0.863)	0.108 (7.044)***	-5.261 (-7.734)***
NKAM		-0.202 (-0.304)	0.043 (1.085)	0.0003 (0.107)	0.002 (1.414)	-0.008 (-0.369)
BV	+	1.360 (8.502)***				
NI	+/+	-0.090 (-0.097)	0.011 (0.501)			
*NKAM*BV*		-0.074 (-1.720)*				

*NKAM*NI*		1.003 (3.698)***	-0.006 (-0.756)			
ΔNI			-0.036 (-0.826)	-0.001 (-0.515)		
*NKAM*ΔNI*			0.013 (0.900)			
LMV				-0.003 (-1.599)		
ROA	−/−/−			-0.063 (-0.991)	0.084 (1.544)	1.376 (1.436)
LOSS	−/−/+			-0.010 (-0.770)	0.007 (1.204)	0.142 (1.359)
BTM				-0.380 (-0.303)	-0.004 (-0.005)	-7.051 (-0.312)
LEV	+/+/+			-0.019 (-0.994)	0.010 (0.883)	0.910 (2.396)**
BIG4	/+/+			0.036 (2.057)**	-0.008 (-0.957)	0.113 (0.457)
SIZE	−/+				-0.005 (-4.952)***	0.800 (18.199)***
CFO	−				-0.022 (-0.547)	-2.464 (-2.534)***
TA					0.082 (2.827)***	
INV	+					-0.322 (-0.382)
FSALES	+					0.707 (4.467)***
ID		Included	Included	Included	Included	Included
N		430	424	278	396	352
Adjusted R^2		0.530	0.0185	0.0333	0.1134	0.605
F-value		45.029***	1.724*	1.681*	4.370***	34.538***

This table shows the coefficients and *t*-statistics for the investors' reaction (price, return and CAR), audit quality (discretionary accruals) and audit fees. ***, **, * indicate statistical significance from two-tailed tests at 0.01, 0.05, and 0.1, respectively.

5.4. Additional Analysis

In an attempt to better understand the impact of KAM's disclosure effect, I perform further analyses using separate variables for the number of KAM disclosed. Therefore, I replace the variable *NKAM* with two new interest variables, *NKAM1* and *NKAM2*, representing dummy variables that equal 1 when a company discloses one KAM, or two KAM, respectively.

Similarly to the multivariate analysis, I choose between the fixed effects model and random effects model using the Hausman test, presented in Appendix B. Accordingly, the analysis presented below for the price model, audit quality and audit fees corresponds to the results shown in the fixed effect model, reported in table 5.8, while the analysis for the return model and CAR model corresponds to the results shown in the random effects model, reported in table 5.9.

Overall, the coefficients for *NKAM1* and *NKAM2* are not statistically significant for the proxies used. Therefore, these results are consistent with the multivariate analysis previously presented, that concluded that KAM's disclosure has no effect on investors' reactions, audit quality and audit fees.

Table 5.9 - Additional analysis – Fixed effects model

		P	*R*	*CAR*	*|DA|*	*AFEES*
Variables	Prediction	Coefficient (*t*-stats)	Coefficient (*t*-stats)	Coefficient (*t*-stats)	Coefficient (*t*-stats)	Coefficient (*t*-stats)
Intercept		31.494 (9.54)***	0.303 (2.946)***	0.005 (0.866)	-0.244 (0.177)	-1.388 (-0.466)
NKAM1		-3.373 (-1.017)	-0.555 (-1.422)	0.004 (0.220)	0.008 (0.958)	-0.018 (-0.181)
NKAM2		-1.224 (0.537)	-0.672 (-2.781)***	0.012 (1.082)	0.008 (1.454)	0.070 (1.146)
BV	+	-0.347 (-1.316)				
NI	+/+	1.460 (2.458)**	-0.067 (-1.385)			
*NKAM1*BV*		0.329 (1.635)				
*NKAM2*BV*		-0.315 (-1.423)				
*NKAM1*NI*		-2.810 (-2.62)***	0.085 (1.191)			
*NKAM2*NI*		1.609 (1.129)	0.081 (1.323)			
ΔNI			0.081 (1.378)	0.001 (0.423)		
*NKAM1*ΔNI*			-0.098 (-1.543)			
*NKAM2*ΔNI*			-0.077 (-0.591)			
LMV				-0.004 (-1.345)		
ROA	−/−/−			-0.129 (-1.371)	0.184 (1.853)*	0.858 (0.822)
LOSS	−/−/+			-0.026 (-1.353)	0.010 (1.071)	0.032 (0.287)
BTM				-1.935 (-1.052)	-0.777 (-0.313)	-14.330 (-0.504)
LEV	+/+/+			-0.004 (-0.154)	0.160 (3.064)***	1.474 (2.158)**
BIG4	/+/+			0.049 (2.167)**	-0.006 (-0.300)	-0.077 (-0.234)
SIZE	−/+				0.013 (1.096)	0.539 (2.826)***
CFO	−				-0.113 (-1.143)	-3.225 (-2.694)***
TA					0.082 (1.877)*	
INV	+					-0.539 (-0.417)
FSALES	+					0.154 (0.647)
N		430	424	278	396	352
Adjusted R^2		0.949	-0.030	0.018	0.315	0.978
F-value		36.926***	0.944	1.035	1.879***	83.296***

This table shows the coefficients and *t*-statistics for the investors' reaction (price, return and CAR), audit quality (discretionary accruals) and audit fees. ***, **, * indicate statistical significance from two-tailed tests at 0.01, 0.05, and 0.1, respectively.

Table 5.10 - Additional analysis – Random effects model

		P	*R*	*CAR*	*|DA|*	*AFEES*
		Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Variables	Prediction	(*t*-stats)	(*t*-stats)	(*t*-stats)	(*t*-stats)	(*t*-stats)
Intercept		20.847	0.631	0.009	0.114	-5.238
		(6.321)***	(4.187)***	(0.384)	(7.203)***	(-7.663)***
NKAM1		-1.423	0.091	0.016	-0.005	-0.039
		(-0.499)	(0.477)	(1.296)	(-1.090)	(-0.425)
NKAM2		-0.540	-0.096	0.006	-0.004	0.045
		(-0.309)	(-0.793)	(0.819)	(-1.251)	(0.779)
BV	+	1.198				
		(12.189)***				
NI	+/+	3.145	-0.005			
		(5.887)***	(-0.458)			
*NKAM1*BV*		0.108				
		(0.616)				
*NKAM2*BV*		-0.360				
		(-1.946)*				
*NKAM1*NI*		-2.343	-0.002			
		(-2.325)**	(-0.081)			
*NKAM2*NI*		2.077	-0.001			
		(1.724)*	(-0.048)			
ΔNI			0.002	-0.001		
			(0.263)	(-0.563)		
*NKAM1*ΔNI*			-0.005			
			(-0.120)			
*NKAM2*ΔNI*			0.032			
			(0.326)			
LMV				-0.002		
				(-1.118)		
ROA	−/−/−			-0.070	0.081	1.255
				(-1.103)	(1.492)	(1.304)
LOSS	−/−/+			-0.010	0.007	0.138
				(-0.722)	(1.170)	(1.330)
BTM				-0.575	0.001	-8.173
				(-0.456)	(0.001)	(-0.361)
LEV	+/+/+			-0.014	0.010	0.896
				(-0.752)	(0.837)	(2.353)**
BIG4	/+/+			0.037	-0.008	0.113
				(2.103)**	(-1.063)	(0.454)
SIZE	−/+				-0.005	0.797
					(-4.975)***	(18.158)***
CFO	−				-0.019	-2.396
					(-0.467)	(-2.440)**
TA					0.081	
					(2.814)***	
INV	+					-0.340
						(-0.403)
FSALES	+					0.709
						(4.463)***
ID		Included	Included	Included	Included	Included
N		430	424	278	396	352
Adjusted R^2		0.538	-0.030	0.037	0.113	0.603
F-value		36.633***	0.944	1.708**	4.133***	32.395***

This table shows the coefficients and *t*-statistics for the investors' reaction (price, return and CAR), audit quality (discretionary accruals) and audit fees. ***, **, * indicate statistical significance from two-tailed tests at 0.01, 0.05, and 0.1, respectively.

6. CONCLUSION

After the financial crisis of 2008 the criticism to the audit report's value increased, leading standard setters to work on an audit reform. Among the revisions and additions made to ISA, was ISA 701 "*Communicating Key Audit Matters in the Independent Auditor's Report*" from IAASB, which demanded for auditors of listed companies to disclose KAM. Similarly, other standard setters also made changes to their audit reporting model (FRC, 2013a; PCAOB, 2017), as the EC, which introduced new requirements to conduct an audit of PIE, as the inclusion of a section analogous to KAM from IAASB.

While some experimental studies find that, for example, KAM's disclosure affects investors' reactions, archival studies have shown that standard setters' expectations are not accomplished. However, the latter studies only provide early evidence, and at times contradictory findings. Therefore, in this study I assess whether KAM impacts investors' reactions, audit quality, and audit fees. For that, I resort to a more complete sample, including listed companies from the main stock market indices from each EU state member. The data used are from the two years after the transposition date of the requirements of Regulation n.º 537/2014 to their national legislation.

For investors' reactions, I use association studies, the price model and the return model, and an event study, the CAR model, while for audit quality, and audit fees, I use as proxy the absolute value of discretionary accruals, and the natural logarithm of audit fees, respectively.

For investors' reactions I find that, according to the price model's results, in long term KAM reflect risks for net income, and are informative for investors. However, the results for the return model show that this disclosure is not considered to be informative, therefore, the differing results from the association studies do not allow to conclude about KAM's long-term effect. In short-term, according to the CAR model, I also find that KAM has no effect on investors' reactions. Taken together, these results suggest that KAM's disclosure has no impact on investors' reactions. Similar results are found for the impact of KAM's disclosure on audit quality and audit fees. I also perform an additional analysis and the results are consistent with the previous findings. In summary, contrary to standard setters' expectations, this additional requirement has no impact on investors' reactions, audit quality and audit fees, thus, my results do not support the disclosure of KAM. The results find for investors' reactions might result of

investors already be aware of the risks disclosed in KAM or because they believe that the auditor performed the necessary work to mitigate the disclosed risks. Audit quality' results may be driven from a lack of impact in the time resources and audit effort needed, while the results for audit fees might result of auditors absorbing any additional time or audit effort related to KAM's disclosure.

This study is subject to some limitations. First, my sample does not comprise all state members from the EU, as some of them transposed the EC's regulation in a date which implied using data not yet available, while others haven't even transposed it yet. In the same way, some state members also do not have a main stock market index, and for that reason they also could not be included in the sample. Second, in the CAR model I estimated the CAR value of each observation using the date on which the audit report was made publicly available. However, this information is not shared by every company, which led us to remove many observations from the sample. Third, the window of days used in the event study was based on previous literature, however, the fact of it being narrow can lead to misleading conclusions, since some countries may react to new information in a slower period. Finally, for the audit quality study I used only the discretionary accruals, and since there isn't a common agreement on the proper definition and measure of audit quality yet, it can be seen as a limitation to this study.

However, my results and limitations introduce some opportunities for future research. First, since KAM's disclosure is still included in the audit report, future research could use data from more of the following years after the transposition date of the Regulation n.º 537/2014 to assess if the impact remains the same throughout the years. Second, future research could also use a more complete and homogeneous sample, with, for example, listed companies from the STOXX® Europe 50 or STOXX® Europe 600. Third, since not all of the KAM have the same nature, future research could also assess which types of KAM have impact on investors' reactions, audit quality, and audit fees, using, for example, the same distribution as Lennox et al. (2019), i.e., assessing the impact of the entity-level risk KAM (ELRKAM) and the account-level risk KAM (ALRKAM). Fourth, in order to better assess KAM's disclosure on invertors' reactions, future research can replicate this research's event study with more window options around the event date, to understand if the results still hold. Finally, regarding audit quality, future research could also complement my analysis using other known measures for audit quality, in order to reach a more solid conclusion.

7. SOURCES

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9. APPENDIX

Appendix A – Multivariate Analysis - Correlated Random Effects - Hausman Test

	Chi-Sq. Statistic	Chi-Sp. d.f.	Prob.
Price	109.615	5	0.000***
Return	11.708	5	0.039**
CAR	11.238	8	0.189
Audit quality	13.830	9	0.129
Audit fees	26.076	10	0.004***

*** significant at a 0.01 level; ** significant at a 0.05 level; * significant at a 0.10 level.

Appendix B – Additional Analysis - Correlated Random Effects - Hausman Test

	Chi-Sq. Statistic	Chi-Sp. d.f.	Prob.
Price	106.633	8	0.000***
Return	10.413	8	0.237
CAR	9.361	9	0.405
Audit quality	21.248	10	0.019**
Audit fees	26.687	11	0.005***

*** significant at a 0.01 level; ** significant at a 0.05 level; * significant at a 0.10 level.

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